

What defines language dominance in bilinguals?

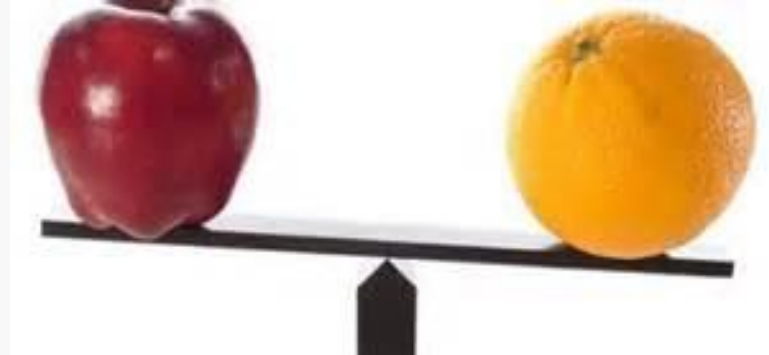
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Overview



- Why measure language dominance?
- What is language dominance?
- Language dominance in a quadrilingual family
- Handedness and dominance
- Issues of operationalisation and measurement
- The issue of “balance”
- Where do we go from here?

A view from a bilingual family

- An interview with Linda's quadrilingual family in the UK (Italian, German, English and Bulgarian)
 - How are languages distributed over different domains/addressees?
 - At what language levels is language dominance visible?
 - Does language dominance change over time?

Why measure language dominance?

- Studies in the linguistics, psycholinguistics, language development and neurolinguistics of bilingualism have often developed conflicting results.
- Some of the difficulties encountered could have been avoided if more attention had been paid to methodological and conceptual issues (Grosjean, 1998, p. 132).

Language dominance as *explanans*?

- On a recent blog post on a forum for parents, a mother of Arabic-English bilingual children complains that “in the community language [Arabic], they get sentence order wrong quite a bit **because** it is their weaker language.”

http://community.babycenter.com/post/a28733811/weakening_second_language_skills

- Language dominance in English **explains why** repetition priming is weaker in Hebrew than in English (Gollan & Forster, 1997: 1127)

Language dominance as *explanandum*?

- We first need to explain what language dominance is before we can use it as an explanation of other phenomena.
- Confusion about the term “dominance” (Meisel, 2007)

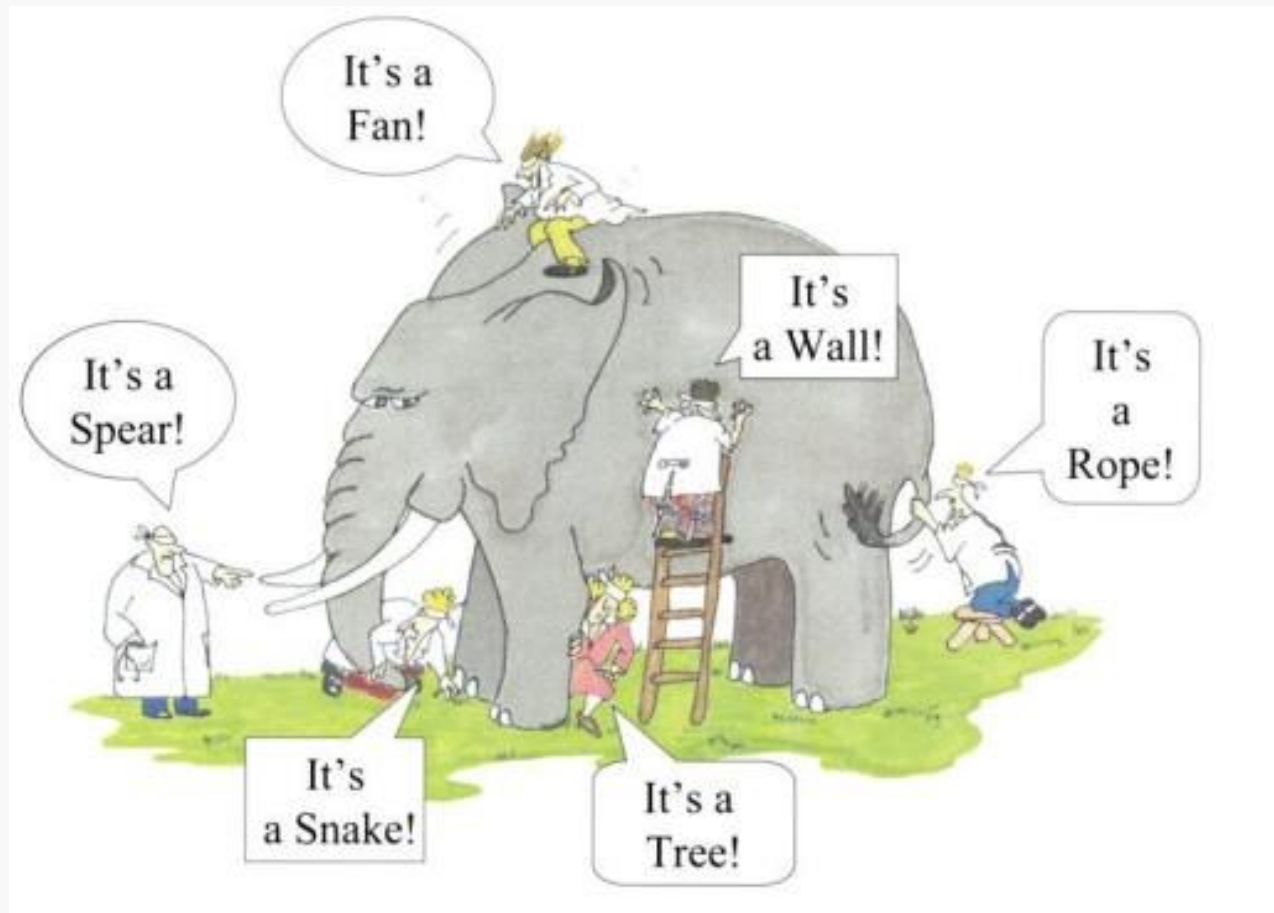


What is language dominance?

- The notion of language proficiency, be it in a first language (L1) or second language (L2), is often taken for granted, and so are the notion of language dominance and the notion of native speaker (Hulstijn, 2012)

What is language dominance?

- Proficiency (Deuchar & Muntz, 2003; Petersen, 1988, Unsworth, in press)
- Input (Yip & Matthews, 2006)
- Frequency of use, overall fluency and domains of use, age of acquisition, ability to read or write in different languages (Grosjean, 2008)
- Levels of language activation (Pavlenko, 2014)
- Speed, fluency, automaticity, or efficiency (accuracy) in processing (Birdsong, 2006; Favreau & Segalowitz, 1982)



Descriptions of bilingualism somewhat resemble descriptions of an elephant as made by different people in a dark room ([Fishman & Cooper, 1969](#)),).

What is language dominance?

- Sociolinguistics: dominance of one language in society (Fishman, 2001)
- Psycholinguistics: language dominance in the individual (Hamers & Blanc, 2000)
- Neurolinguistics: language lateralization – hemisphere dominance for language (Hertz-Pannier et al., 1997)

What is language dominance?

- “Language dominance is essentially a psycholinguistic phenomenon closely intermeshed with sociolinguistic parameters” (Lanza, 2004, pp. 172–173)

The bilingual experience

- The bilingual experience involves two key dimensions (Luk & Bialystok, 2013):
 - bilingual usage on a daily basis,
 - language proficiency

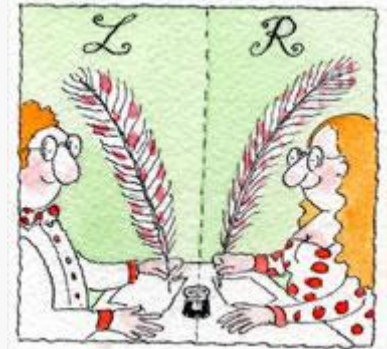
The bilingual experience

- Any description of bilinguals should minimally involve a description of proficiency *and* usage.
- **Language proficiency** is “what a person *can* do”
- **Language use** is “what a person *typically* does” (Fishman, Cooper, & Ma, 1968).

Defining language dominance

- Language dominance is a “global measure of relative frequency of use and proficiency in each language” (Wang, 2013, p. 738)

Handedness



- *Manual skill* with which they perform tasks with each hand.
- *Manual preference*, that is how frequently they use each hand in different domains (e.g. dealing cards or using scissors).
- (Annett, 1970; Birdsong, in press)

Ambidextrous

- Only one percent of the population is truly ambidextrous in that they are able to do any task to the same level of skill with either hand.



Leonardo da
Vinci



Michelangelo



Isaac Newton

Queen Victoria

Napoleon
Bonaparte

Wolfgang Mozart

Edinburgh handedness inventory

Je-S: Attachments x Je-S Handbook x Edinburgh Handedness In x

zhanglab.wdfiles.com/local--files/survey/handedness.html

Apps journals.cambridge... www.researchinfone... FREQUENCY INDEX... Staff portal home p... IT Services System ... ww

This handedness survey is based on Edinburgh Handedness Inventory.
Please indicate which hand you prefer for each of the following activities.

Task	Preference	Left	Right
1. Writing	Right hand strongly preferred ▼		2
2. Drawing	Right hand strongly preferred ▼		2
3. Throwing	Right hand preferred ▼		1
4. Using scissors	Right hand strongly preferred ▼		2
5. Brushing teeth	Right hand strongly preferred ▼		2
6. Using a knife (without a fork)	Right hand strongly preferred ▼		2
7. Using a spoon	Right hand preferred ▼		1
8. Using a broom (dominant hand)	Right hand preferred ▼		1
9. Striking a match	Right hand preferred ▼		1
10. Opening a jar	No preference ▼	1	1
Total		1	15

Your Handedness Score

+0.9

-1.0 <-- **-0.5** <-- **0.0** --> **+0.5** --> **+1.0**
 Pure left hander Mixed left hander Neutral Mixed right hander Pure right hander

Your handedness score is calculated using this formula: $(\text{Right} - \text{Left}) / (\text{Right} + \text{Left})$.

Handedness

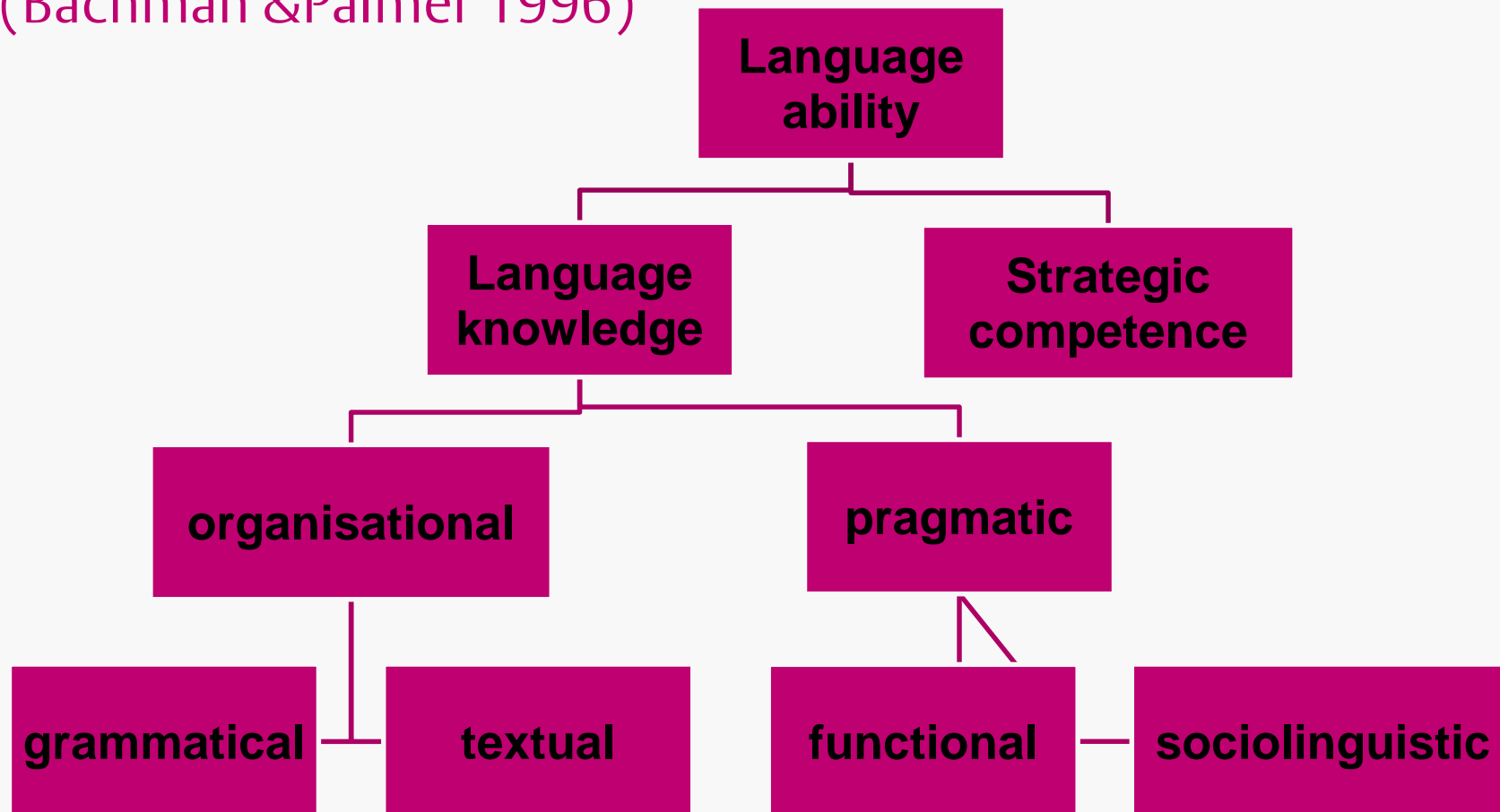
- No one sees ambidexterity as a goal that needs to be achieved in raising children.
- A distribution of labour between both hands works very well for most people.
- Predominant right-handers or left-handers are not described as “unbalanced” or “inconsistent” just because they use one hand more for a range of tasks.

Language dominance and proficiency

- Most frequently language dominance is defined in relation to *language proficiency* or *language competence* (Cummins, 1976; Genesee, Nicoladis, and Paradis, 1995; Deuchar and Muntz, 2003; Peal & Lambert, 1962; Unsworth (in press).
- Language dominance is seen as relative proficiency in each language.

Components of language ability

(Bachman & Palmer 1996)



Components of language dominance

- Language dominance is clearly visible at the level of the lexicon in that bilinguals have words in one of their languages for concepts about which they talk in that language.
- Bilinguals have translation equivalents for only 30-37 percent of their words, which means that the lexicon is to a large extent language-specific (Grosjean, 2016)

Components of language dominance

- Does a bilingual who has a larger vocabulary in one of their languages also have a better command of the syntax or the phonology of that language?
- There is no “necessary connection between ability in one level and another” (Romaine ,1989, p.13)
- Differences in dominance on a cloze test and an accent test in two languages but with respect to gender assignment – only differences in one (Kupisch &van de Weijer, 2016).

Language dominance and use

- Others adhere to the view that language dominance cannot be understood without involving the concept of language *use*.
- They generally make use of the notions of *domains* or *functions* of language (Birdsong, 2016; Grosjean, 2016; Mackey, 1976; Skutnabb-Kangas (1981)).

Issues of operationalisation and measurement

- Which tests can be used to measure either proficiency or use?
- How can “balance” be operationalised?

- Self-ratings (Goggin, Estrada, & Villarreal, 1994; Kohnert et al., 1999)
- Questionnaires (Argyri & Soraci, 2007; Dunn & Fox Tree, 2009)
- Vocabulary tests (Bialystok, Craig & Luk, 2008)
- Judgements of experts (Talamas et al., 1999)
- Grammaticality judgements (Lemmon & Goggin, 1989)
- Name pictures in both languages (Mägiste, 1992)
- Fluency, speed, automaticity (Segalowitz, 2010)
- Reading speed (Favreau & Segalowitz, 1982; Macnamara, 1969)
- Duration of repetition of sentences in two languages (Flege et al., 2002)
- Directionality of code-mixing (Lanza, 2004)
- Ability to translate (Flege et al., 2002)
- MLU (Yip & Matthews, 2006)
- Vocabulary richness (Daller, Treffers-Daller & Van Hout, 2003)
- Accent ratings (Favreau & Segalowitz, 1982)
- Weak Language Scale (rate of acquisition, vocabulary, number of target deviant forms, MLU and discourse pragmatics, La Morgia, 2011)

Issue 1: task-specificity

- Language dominance is task-specific
- Language dominance measures sometimes do not even correlate.
- *Overall* language dominance with respect to use or proficiency in two languages does not exist
- It is possible for bilinguals to be more or less balanced with respect to a *specific criterion*

Issue 2: Static or dynamic?

- Language dominance will vary by domain and across time, being a constantly changing personal characteristic (Baker, 2006, p. 35; Grosjean, 2016)

Changes over time

- Changes in language dominance among 800 Cuban and Mexican immigrants who had been living in the United States for up to fifty years and were between the ages of 10 and 26 years when they came to the US (Bahrnick et al. 1995)
- 60 percent of the participants became English-dominant on the category generation task, versus 35 percent and 29 percent of participants on the lexical decision and the vocabulary recognition tasks

Issue 3: comparability of scores

- Can scores from two languages be compared?
 - Highly inflected languages versus isolating languages
 - Derivational suffixes
 - Function words
 - Etc.
- Are two tests equally difficult in two languages?

Peabody picture vocabulary task



- Receptive vocabulary task
- Available in many languages
- Dunn & Dunn (2007)

Sentence repetition task

- A sentence repetition test for each language consisting of 40 critical morphosyntactic features, carefully chosen on the basis of available descriptive grammars.
- Verhoeven (2007)
- How comparable are grammatical features?
- (see also Cost Action <http://www.bi-sli.org/>)

Issue 4: Computation of dominance

- Difference scores or a ratio?
- Index of Language Dominance =
Test score language A – test score language B
- Scores vary from -100 to +100
 - 100: highly dominant in B
 - +100: highly dominant in A.

Bedore et al. (2012)

- Functionally Monolingual Spanish (from -100 to -61);
- Bilingual Spanish Dominant (from -60 to -21);
- Bilingual (from -20 to 20);
- Bilingual English Dominant group (from 60 to 21)
- Functionally Monolingual English (from 100 to 61).

Issue 4: Cut off points?

- Researchers use many different cut-off points to separate “dominant” from “balanced” bilinguals
- Alternative: Convert scores to z-scores
 - Participants with Z-scores higher than 1 are classified as dominant in A
 - Those with Z-scores below -1 are dominant in language B;
 - Those with Z-scores between -1 and +1 are balanced bilinguals

Cut off points, cont.

- Better *not* to impose a categorization on the data:
- use dominance as a continuous independent variable
- Use regression analysis to predict variance in the researcher's chosen dependent variable (Birdsong, 2016; Treffers-Daller & Korybski, 2016)

Issue 5: Validation

- A measure of bilingual dominance can only be validated by demonstrating its ability to predict performance in the L1 and L2 (Flege, Mackay & Piske, 2002, p. 571)

- Do balanced bilinguals exist?

Importance of balance

- Cognitive advantages of bilingualism are only found among balanced bilinguals with a high proficiency in both languages (Bialystok, 2009; Cummins, 1976; Peal & Lambert, 1962).

What is involved in knowing a word?

- form, meaning and use (Nation, 2001)
 - pronunciation
 - derivational/inflectional affixes
 - meaning
 - synonyms/antonyms
 - word associations
 - subcategorization
 - collocations
 - register
 - word frequency

Balance in the lexicon?

What are these people doing?



Turkish “equivalent” expressions

meyve suyu içmek

sigara içmek

çorba içmek

içmek: drink – smoke - eat

Can expressions be translated?

- Drink like a fish
- Drink someone under the table
- A fish gets smart after it has got into the net (?)
- Drunken days have their tomorrows (?)
- The one who burns his mouth for drinking milk too hot, eats even
- bir balık gibi içmek (?)
- Masanın altında birisini iç (?)
- Bir balık ağa girdikten sonra akıllı olur.
- Sarhoş günlerin yarınları var.
- Çok fazla süt içmesi için ağzını yakan kişi, yoğurdu bile

Balance and the Complementarity principle

- Language dominance is a reflection of the Complementarity Principle (Grosjean, 1997)
- Balance is at odds with the Complementarity Principle

Balance in phonology?

- A balanced bilingual is sometimes defined as a person who shows little interlingual “interference” (Lambert, 1990).
- “The toilet paper is **in** the fridge”



Is it possible to keep two phonological systems completely separate?

- Some bilinguals can separate two phonological systems from the beginning (Johnson & Wilson, 2002; Kehoe, 2002)
- Other bilinguals use systems which differ from monolinguals of either language (Bosch, Costa, & Sebastián-Gallés, 2000; Mack, 1989).

Balance = no transfer?

- The wide-spread occurrence of transfer in child and adult bilinguals (Treffers-Daller & Sakel, 2012) shows that language competence, use and processing are different in monolinguals and bilinguals.

Balance = no transfer?

- A bilingual is not two monolinguals in one person (Grosjean, 1998)



Balance in multilinguals?



- Can trilinguals, quadrilinguals, pentalinguals etc. be balanced?
- We need more research on language dominance in multilinguals

Which picture do you prefer?



A



B

Balance and symmetry

- The fact that “balanced bilingualism” is seen as a positive value may in part stem from the fact that symmetry is preferred over asymmetry in a wide variety of fields, ranging from the physical sciences to fields such as architecture, music, maths or biology (Treffers-Daller, 2016)

Symmetry is everywhere



Balance

- “The search for the true balanced bilingual depicted in some of the literature on bilingualism is elusive.
- The notion of balanced bilingualism is an ideal one, which is largely an artifact of a theoretical perspective which takes the monolingual as its point of reference.”
(Romaine, 1989: 18)

- Where do we go from here?

Domains

- What is the impact of differences in language use according to domains on language dominance?
- Complementarity index (Grosjean, in press)
- We need tests of dominance based on vocabulary required for different domains

Thank you very much!

Рақмет сізге

Спасибо



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