

Oral Comprehensive Exams Presentation Notes - John D. Martin II - 7 June 2017

Directionality and Spatial Agency Bias

Spatial Agency Bias (SAB) is a theoretical model suggesting that human agency and interpretation of visual-spatial cues follows the directional orientation of the script belonging to a person's native language. In addition to script direction the bias is moderated by habituation (exposure to another opposite-direction language may reduce it) and contextual cues related to movement (implied directionality), as well as other linguistic factors related to syntax order (Suitner & Maass, 2016).

In visual representations, people tend to draw motion according to their expected spatial agency bias unless otherwise directed (Maass, Suitner, & Nadhmi, 2014; Vaid, Rhodes, Tosun, & Eslami, 2015; Vaid, Schubert, & Maass, 2011). Additionally, spatial agency bias can have an effect on the interpretation of agency in a depicted image (Maass & Russo, 2003; Maass, Suitner, Favaretto, & Cignacchi, 2009/5; Maass et al., 2014). In other words, people who read left-to-right (LTR) languages (English and other Roman, Greek, and Cyrillic-scripted languages) are expected to interact with and interpret visual-spatial environments differently than people who read right-to-left (RTL) languages (Arabic, Urdu, Farsi, Hebrew).

Spatial Agency Bias in information objects and interfaces

In the context of information objects, the expectations associated with spatial agency bias may obscure information, increase confusion, or cause people to become frustrated with interfaces. This is particularly of concern when the purpose of an interface is to elicit information, as it may also reduce trust (Joinson, 2001; Joinson, Paine, Buchanan, & Reips, 2008; Joinson, Reips, Buchanan, & Schofield, 2010).

Spatial Agency Bias in response scales

Why is this important? Interactive interfaces do not just display information to people. They are also used to elicit information from people, including sensitive or critical information. In the case of pain scales, the information being elicited can make a huge difference in how patients' pain is dealt with. Incongruencies related to spatial agency bias may have an effect on response, which means that the information being elicited by this instrument may not be accurate.

The design of response scales is well-researched, with a variety experimentally verified principles to draw from in constructing new items. The visual spatial aspects of response scales also have been researched experimentally, resulting in sets of heuristics that can aid in their construction:

1. Middle means typical;
2. Left and top mean first;
3. Near means related;
4. Up means good; and
5. Like (in appearance) means close (in meaning) (Tourangeau, Couper, & Conrad, 2004, 2007, 2013).

These heuristics do not, however, take spatial agency bias into account, which may have unintended effects when applied in other than English/LTR contexts (Toepoel & Dillman, 2011).

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