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## Influence of the Learnt Direction of Reading on Temporal Order Judgments

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### ABSTRACT

Our previous work has shown a leftward bias in the temporal order judgment task (Pérez, García, & Valdes-Sosa, 2008). This pseudoneglect was found in a sample of Spanish-speaking participants who read in a left-to-right manner. The goal of the current study was to examine if the reading related scanning habits modulate the bias observed in the TOJ task. To this aim, we replicated the study with Arabic participants who learned to read in a right-to-left direction. Results showed no lateralization suggesting that reading habit is probably a factor affecting the distribution of spatial attention. We suggested that our failure to obtain a reversed bias might be due to the fact that they experienced both types of reading habits. We also presented a possible explanation of why the finding of pseudoneglect in temporal order judgment tasks is rather unusual.

### KEYWORDS

TOJ, Pseudoneglect, Spatial, Bias, Attention

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### References

- [1] Bachmann, T., Poder, E., & Luiga, I. (2004). Illusory reversal of temporal order: The bias to report a dimmer stimulus as the first. *Vision Research*, 44, 241-246. doi:10.1016/j.visres.2003.10.012
- [2] Bellgrove, M. A., Dockree, P. M., Aimola, L., & Robertson, I. H. (2004). Attenuation of spatial attentional asymmetries with poor sustained attention. *Neuroreport*, 15, 1065-1069. doi:10.1097/00001756-200404290-00027
- [3] Bellgrove, M. A., Mattingley, J. B., Hawi, Z., Mullins, C., Kirley, A., Gill, M. et al. (2006). Impaired temporal resolution of visual attention and dopamine beta hydroxylase genotype in attention-deficit/hyperactivity disorder. *Biological Psychiatry*, 60, 1039-1045. doi:10.1016/j.biopsych.2006.03.062
- [4] Bowers, D. & Heilman, K. M. (1980). Pseudoneglect: Effects of hemispace on a tactile line bisection task. *Neuropsychologia*, 18, 491-498. doi:10.1016/0028-3932(80)90151-7
- [5] Chokron, S. & De Agostini, M. (2000). Reading habits influence aesthetic preference. *Cognitive Brain Research*, 10, 45-49. doi:10.1016/S0926-6410(00)00021-5
- [6] Chokron, S., Bernard, J. M., & Imbert, M. (1997). Length representation in normal and neglect subjects with opposite reading habits studied through a line extension task. *Cortex*, 33, 47-64.
- [7] Chokron, S. & De Agostini, M. (1995). Reading habits and line bisection: A developmental approach. *Cognitive Brain Research*, 3, 51-58. doi:10.1016/0926-6410(95)00018-6
- [8] Chokron, S. & Imbert, M. (1993). Influence of reading habits on line bisection. *Cognitive Brain Research*, 1, 219-222. doi:10.1016/0926-6410(93)90005-P
- [9] Diekamp, B., Regolin, L., Güntürkün, O., & Vallortigara, G. (2005). A left-sided visuospatial bias in

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- [10] Duncan, J., Ward, R., & Shapiro, K. (1994). Direct measurement of attentional dwell time in human vision. *Nature*, 369, 313-315. doi:10.1038/369313a0
- [11] Enns, J. T. & Di Lollo, V. (2000). What' s new in visual masking? *Trends in Cognitive Sciences*, 4, 345-352. doi:10.1016/S1364-6613(00)01520-5
- [12] Eviatar, Z. (1995). Reading direction and attention: Effects on lateralized ignoring. *Brain and Cognition*, 29, 137-150. doi:10.1006/brcg.1995.1273
- [13] Eviatar, Z. (1997). Language experience and right hemisphere tasks: The effects of scanning habits and multilingualism. *Brain and Language*, 58, 157-173. doi:10.1006/brln.1997.1863
- [14] Finney, D. J. (1964). *Probit analysis: Statistical treatment of the sigmoid curve*. London: Cambridge University Press.
- [15] Halligan, P. W., Fink, G. R., Marshall, J. C., & Vallar, G. (2003). Spatial cognition: Evidence from visual neglect. *Trends in Cognitive Sciences*, 7, 125-133. doi:10.1016/S1364-6613(03)00032-9
- [16] Hari, R., Renvall, H., & Tanskanen, T. (2001). Left minineglect in dyslexic adults. *Brain*, 124, 1373-1380. doi:10.1093/brain/124.7.1373
- [17] Heron, W. (1957). Perception as a function of retinal locus and attention. *The American Journal of Psychology*, 70, 38-48. doi:10.2307/1419227
- [18] Hikosaka, O., Miyachi, S., & Shimojo, S. (1993). Focal visual attention produces illusory temporal order and motion sensation. *Vision Research*, 33, 1219-1240. doi:10.1016/0042-6989(93)90210-N
- [19] Ja?kowski, P. & Rusiak, P. (2008). Temporal order judgment in dyslexia. *Psychological Research*, 72, 65-73.
- [20] Ja?kowski, P. & Verleger, R. (2000). Attentional bias toward low- intensity stimuli: an explanation for the intensity dissociation between reaction time and temporal order judgment? *Consciousness and Cognition*, 9, 435-456. doi:10.1006/ccog.2000.0461
- [21] Kinsbourne, M. (1970). The cerebral basis of lateral asymmetries in attention. *Acta Psychologica*, 33, 193-201. doi:10.1016/0001-6918(70)90132-0
- [22] Luh, K. E., Rueckert, L. M., & Levy, J. (1991). Perceptual Asymmetries for Free Viewing of Several Types of Chimeric Stimuli. *Brain and Cognition*, 16, 83-103. doi:10.1016/0278-2626(91)90087-O
- [23] Manly, T., Dobler, V. B., Dodds, C. M., & George, M. A. (2005). Rightward shift in spatial awareness with declining alertness. *Neuropsychologia*, 43, 1721-1728. doi:10.1016/j.neuropsychologia.2005.02.009
- [24] McCourt, M. E., Freeman, P., Tahmahkera-Stevens, C., & Chaussee, M. (2001). The influence of unimanual response on pseudoneglect magnitude. *Brain and Cognition*, 45, 52-63. doi:10.1006/brcg.2000.1255
- [25] Milner, A. D., Brechmann, M., & Pagliarini, L. (1992). To halve and to halve not: an analysis of line bisection judgements in normal subjects. *Neuropsychologia*, 30, 515-526.
- [26] Nicholls, M. E., Mattingley, J. B., & Bradshaw, J. L. (2005). The effect of strategy on pseudoneglect for luminance judgements. *Brain Research. Cognitive Brain Research*, 25, 71-77. doi:10.1016/0028-3932(92)90055-Q
- [27] Nicholls, M. E. & Roberts, G. R. (2002). Can free-viewing perceptual asymmetries be explained by scanning, pre-motor or attentional biases? *Cortex*, 38, 113-136. doi:10.1016/S0010-9452(08)70645-2
- [28] Nicholls, M. E. (1996). Temporal processing asymmetries between the cerebral hemispheres: Evidence and implications. *Laterality*, 1, 97- 137.
- [29] Oldfield, R. C. (1971). The assessment and analysis of handedness: the Edinburgh inventory. *Neuropsychologia*, 9, 97-113. doi:10.1016/0028-3932(71)90067-4
- [30] Olivers, C. N. & Nieuwenhuis, S. (2006). The beneficial effects of additional task load, positive affect, and instruction on the attentional blink. *Journal of Experimental Psychology: Human Perception and Performance*, 32, 364-379. doi:10.1037/0096-1523.32.2.364

- [31] Orr, C. A. & Nicholls, M. E. (2005). The nature and contribution of space- and object-based attentional biases to free-viewing perceptual asymmetries. *Experimental Brain Research*, 162, 384-393. doi: 10.1007/s00221-004-2196-3
- [32] Pérez, A., García, L., Lage, A., Leh, S. E., & Valdes-Sosa, M. (2008). Right impairment of temporal order judgements in dyslexic children. *Laterality: Asymmetries of Body, Brain and Cognition*, 13, 545-560.
- [33] Pérez, A., García, L., & Valdes-Sosa, M. (2008). Rightward shift in temporal order judgements in the wake of the attentional blink. *Psicológica. International Journal of Methodology and Experimental Psychology*, 29, 35-55.
- [34] Pérez, A., Peers, P.V., Valdes-Sosa, M., Galan, L., García, L., & Martínez-Montes, E. (2009). Hemispheric modulations of alpha-band power reflect the rightward shift in attention induced by enhanced attentional load. *Neuropsychologia*, 47, 41-49. doi: 10.1016/j.neuropsychologia.2008.08.017
- [35] Raymond, J. E., Shapiro, K. L., & Arnell, K. M. (1992). Temporary suppression of visual processing in an RSVP task: An attentional blink? *Journal of Experimental Psychology: Human Perception and Performance*, 18, 849-860. doi: 10.1037/0096-1523.18.3.849
- [36] Robertson, I. H., Mattingley, J. B., Rorden, C., & Driver, J. (1998). Phasic alerting of neglect patients overcomes their spatial deficit in visual awareness. *Nature*, 395, 169-172. doi: 10.1038/25993
- [37] Rorden, C., Mattingley, J. B., Karnath, H. O., & Driver, J. (1997). Visual extinction and prior entry: impaired perception of temporal order with intact motion perception after unilateral parietal damage. *Neuropsychologia*, 35, 421-433. doi: 10.1016/S0028-3932(96)00093-0
- [38] Sekuler, R., Tynan, P., & Levinson, E. (1973). Visual Temporal Order: A New Illusion. *Science*, 180, 210-212. doi: 10.1126/science.180.4082.210
- [39] Schneider, K. A. & Bavelier, D. (2003). Components of visual prior entry. *Cognitive Psychology*, 47, 333-366. doi: 10.1016/S0010-0285(03)00035-5
- [40] Shore, D. I. & Spence, C. (2005). Prior Entry. In L. Itti, G. Rees, & J. Tsotsos (Eds.), *Neurobiology of Attention* (pp. 89-95). New York: Elsevier Academic Press. doi: 10.1016/B978-012375731-9/50019-7
- [41] Shore, D. I., Spence, C., & Klein, R. M. (2001). Visual prior entry. *Psychological Science*, 12, 205-212. doi: 10.1111/1467-9280.00337
- [42] Siman-Tov, T., Mendelsohn, A., Schonberg, T., Avidan, G., Podlipsky, I., Pessoa, L. et al. (2007). Bihemispheric leftward bias in a Visuospatial attention-related network. *Journal of Neuroscience*, 27, 11271-11278. doi: 10.1523/JNEUROSCI.0599-07.2007
- [43] Sinnett, S., Juncadella, M., Rafal, R., Azanon, E., & Soto-Faraco, S. (2007). A dissociation between visual and auditory hemi-inattention: Evidence from temporal order judgements. *Neuropsychologia*, 45, 552-560. doi: 10.1016/j.neuropsychologia.2006.03.006
- [44] Spalek, T. M. & Hammad, S. (2005). The left-to-right bias in inhibition of return is due to the direction of reading. *Psychological Science*, 16, 15-18. doi: 10.1111/j.0956-7976.2005.00774.x
- [45] Sternberg, S. & Knoll, R. L. (1973). The perception of temporal order: Fundamental issues and a general model. In S. Kornblum (Eds.), *Attention and Performance IV* (pp. 625-685). New York: Academic Press.
- [46] Titchener, E. B. (1908). *Lectures on the Elementary Psychology of Feeling and Attention*. New York: Macmillan. doi: 10.1037/10867-000
- [47] Vaid, J., Singh, M., Sakhuja, T., & Gupta, G.C. (2002). Stroke direction asymmetry in figure drawing: influence of handedness and reading/writing habits. *Brain and Cognition*, 48, 597-602.
- [48] Vallortigara, G., Rogers, L. J., Bisazza, A., Lippolis, G., & Robins, A. (1998). Complementary right and left hemifield use for predatory and agonistic behaviour in toads. *Neuroreport*, 9, 3341-3344. doi: 10.1097/00001756-199810050-00035
- [49] Weintraub, S. & Mesulam, M. M. (1987). Right cerebral dominance in spatial attention: Further evidence based on ipsilateral neglect. *Archives of Neurology*, 44, 621-625.

