



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Hans H. Nielsen	Project Number 22065
Project Title Visual/ Motor Coordination between Hemispheres	
Abstract Objectives/Goals This project investigated whether the two hemispheres of the brain are synchronized (sending signals to the motor pathway at the same time) when initiating a motor reaction as a result of a visual cue. Methods/Materials To acquire data, an automated test program was written for a PC. The program directed subjects to focus on an object and react when a cue was displayed in the center of their vision or in their peripheral vision. The order and response time for each index finger when clicking a mouse button was accurately recorded. For each subject, the timings and position in which pictures were displayed were randomized. Hand and eye dominance, age range and gender were recorded for each subject. Results The results showed that there was no significant difference between the times for the left and right responses and no correlation between which side responded first and subject characteristics or cue position. Oddly, the left side responded first 70% of the time. Also, subjects responded fastest to visual cues on their left. Responses to cues showing up in the center were 50 ms slower. Cues on the right were 100 ms slower. Conclusions/Discussion The order and response times of left versus right index fingers showed no correlation to cue position. The hemispheres synchronized motor actions no matter which hemisphere the cue was sent to. The subjects response times had no correlation to their dominant hand, dominant eye, gender, or age, but they consistently reacted faster to the cue on the left.	
Summary Statement This project investigated whether the two hemispheres of the brain send signals to the motor pathway at the same time when initiating a motor reaction as a result of a visual cue.	
Help Received Father gave coding tips and helped analyze results.	