**Go-/ no-go decisions based on gradually revealed visual information.**

Clara Kuper1,2 & Martin Rolfs1,2

*1Department of Psychology, Humboldt-Universität zu Berlin, Germany*

*2Berlin School of Mind and Brain, Humboldt-Universität zu Berlin, Germany*

In everyday life, we often need to choose whether to move or not to move based on rapidly evolving, and potentially incomplete information. Here, we investigated how visually presented, gradually updated information influences a manual response. We used a go-/ no-go task in which we prompted observers to decide if a horizontally moving stimulus (attacker) would hit or miss a hidden goal. The vertical location of the goal was revealed gradually, by showing a sequence of six dots over the course of 1 second, providing independent samples of positions inside the goal. Observers had to touch the monitor at the goal (‘go’ response) within 1 second after the attacker started to move, but only if they thought that the attacker would intercept the goal (‘in’ trial).

As a measure of task difficulty, we computed the probability of an ‘in’ trial (pin) after each new sample. Higher probabilities of an ‘in’ trials were associated with more ‘go’ responses, and lower probabilities were associated with more ‘no-go’ responses. This pattern was also explained by the vertical distance between the samples and the position of the attacker. Comparing pin in correct and incorrect trials, we found that information carried by the first two samples (presented 0 and 166 ms after trial onset), differed between correct and incorrect responses. Incorrect ‘go’ responses were characterized by higher pin values in these time windows, and incorrect ‘no-go’ responses by lower pin values, compared to the correct responses in each response category.

Overall, our results suggest that human observers use gradually updating information for a go/no-go decision. When the later samples provided evidence contradictory to the former ones, responses were better explained by the later samples, indicating that an imminent decision is rapidly modified to account for new information.