Nudges and sigmoid function

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```
library(pracma)
library(ggplot2)
library(tidyr)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```r
nudge_threshold <- Vectorize(
  function(t, a, nudge) {
    c <- logit(t, a = a)
    sigmoid(c + nudge, a = a)
  }
)
```

```r
df <- expand_grid(
  prob = c(0.01, 0.03, 0.05, 0.1, 0.25),
  sig_a = c(0.25, 0.5, 1, 2),
  nudge = -10:40 / 10
) %>%
  as_tibble() %>%
  mutate(nudged_prob = nudge_threshold(prob, sig_a, nudge))
```

```r
ggplot(df) +
  geom_line(aes(x = nudge, y = nudged_prob, group = prob)) +
  facet_grid(sig_a ~ prob, labeller = label_both) +
  theme_bw()
```