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Brief Experimental Report

Selective admission and the preferred source of acknowledgment after an automated access delay

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Abstract

Background: A delay at an automated entrance can resemble an act of selective admission. It is unclear to whom an affected person would address a request for acknowledgment when the other entrant is an object.

Methods: In a factorial randomized experiment, 192 adult psychology outpatients viewed an entrance from the position of a badge holder waiting for admission. The door admitted an unattended linen cart during the wait or made an empty opening while the cart passed beside it. After an explanation of the fixed schedule, participants could request acknowledgment from the door, request it from the facilities office, or file without a request. A separately randomized acknowledgment, attributed to either source, was then presented.

Results: A request to the door was filed by 51 of 96 participants after cart admission and 21 of 96 after empty opening, a difference of 31.3 percentage points (95% CI 17.7 to 43.2). After cart admission, 36 of 48 participants accepted closure with the door’s acknowledgment compared with 25 of 48 with the office’s. Corresponding counts after empty opening were 40 and 39. The interaction estimate was imprecise.

Conclusions: Admission of an unattended cart increased the probability of addressing the delay to the door itself. Participants could accurately describe the controller’s fixed schedule and still ask for the door’s copy of the record to show that they had been kept waiting.

Keywords: social exclusion; interpersonal attribution; automated entry; clinical psychology; randomized experiment

Introduction

A person approaching an automatic door generally expects it to open. When it stays closed, stepping back a short distance and approaching again often settles what happened. The position is different if the door has in the meantime opened for somebody else. There is now a witness to the availability of the entrance, although nothing about the mechanism has changed. In interviews about minor public exclusions, people occasionally named a door among the parties from whom they wanted an explanation [1]. One interview could be coded either as a complaint against the building operator or as a complaint against the entrance itself. The interviewer had failed to ask which party the participant wanted to hear from.

Laboratory work on ostracism has largely concerned acts by other people, including acts represented by programmed players [2, 3]. The expectation of a turn persists when there is little to be gained from receiving it [4]. In these tasks someone else usually receives a turn in the participant’s place. Selectivity and social comparison then come together. A cart can pass through a doorway, but it offers little opportunity for a comparison of social standing. Its admission may nevertheless be evidence that the entrance was in working order when the person arrived.

There are several reasons why someone might address an object following a failure. They might expect a person to read its log. They might believe the controller has preferences, or consider it appropriate for an account of the delay to reside with the equipment that registered it. Work on attribution to nonhuman agents distinguishes a capacity to act from a capacity to experience the consequences [5–7]. In the case of an

entrance there is a further distinction between explaining the delay and acknowledging that it occurred. An accurate wiring diagram can supply the former without supplying the latter.

We tested the effect of admitting an unattended linen cart on the subsequent choice of addressee. A person received exactly the same number of seconds of access delay when the door opened onto an empty passage. In a second allocation we varied whose acknowledgment appeared on a record of the incident. We recruited adults already attending a psychology outpatient service to study a form of everyday interpretation that arose in patient interviews; the experiment concerned a decision at a desk and had no therapeutic component.

Method

Recruitment and allocation

Patients came from the general assessment service in Uppsala between January and July 2025. A researcher approached consecutive adults at the end of their visit on staffed study days. Eligibility required age 18 or older, ability to read the brief records in Swedish, and a visual and auditory demonstration confirming that the participant could follow the movements of the cart and the door. A participant could have the speech read aloud. We excluded previous participants in the development sessions and people with a further clinical appointment due during the study interval. The office held no list of diagnoses linked to the apparatus. Staff recorded the setting of the current appointment and age at entry.

An independent allocator prepared packets in randomly ordered blocks of eight containing two copies of every combination of admission and acknowledgment source. The first part of the packet named a film. The second part was sealed separately; the clerk could open it only after recording the participant’s first choice. Neither participant nor clerk could be blind to the movement shown in the film. No outcome required the clerk to decide whether the door had been treated as a social agent. The first outcome was which folder received a signed slip. Our counts include everyone assigned, by the film and source printed in the packet. The Rannevold Experimental Register lists the protocol under RER-24-71. We filed the order of the outcomes with the protocol [8, 9].

Entrance sequence

The filmed entrance was a disused records room fitted with a single pair of sliding doors. A camera on a short track waited on a marked point and ended on the far side of the threshold. At the start, each participant chose a badge with one of four geometric figures. The film showed the corresponding figure next to the word Visitor on the access panel. Staff explained that the participant was the holder of this badge for the duration of the assessment. The other badge in the scene was clipped to the frame of an empty linen cart. A tow concealed below the frame moved it at walking speed. No porter was present. Nothing belonging to another patient or member of staff lay on the cart.

The first chime marked arrival of the participant’s badge. The doors remained shut for four seconds, opened once, closed, and opened again at 12 seconds, at which point the view passed through on the participant’s badge. In the cart-admission condition the cart traveled between the leaves during the first opening. In the empty-opening condition the same cart traveled along a parallel strip marked on the floor beside the entrance and

disappeared behind a screen. The distance traveled, time in view and sound of the wheels were matched by editing on the same time base. The door occupied the same pixels on both films except where the cart obscured the lower rail. The badge panel showed Wait until the second opening and recorded the visitor at the same instant in both films. Thus both participants could see a working door move while they waited. The treatment difference was whether the other badge crossed the threshold during the opening.

The cart bore the inscription Linen only on its short end in both films. In pilot interviews a folded blanket on the cart was taken for the property of a person already inside the room. An empty wire basket made the absence of a third party easier to establish [10]. An early recording also showed a reflection of the camera operator near the return track. Staff painted the narrow reflective strip and reshot both passages. The final comprehension check asked about the presence of another person without reminding the viewer of the basket. We collected that answer after the filing decision. The person who edited the films had no subsequent contact with participants.

Explanation and record of the delay

A paper diagram followed both films. It showed two contact closures on a fixed timeline and a separate trace of the cart position. The participant could see that the filmed opening times had been set before recording. The mechanism read no name and had no input comparing a visitor with a cart. The clerk explained that the room was already available, the visit had finished on schedule and a repair would neither be ordered nor needed. The explanation came before the primary decision. This order was chosen

because requests made without it could merely be requests to learn why the door worked for the cart.

On the desk lay a record bearing the badge figure. A patient could file it as it stood or enclose a request for acknowledgment addressed to one of two recipients. The choices were the automatic door, whose copy would be entered in the equipment log, and the facilities office, whose copy would be entered in the office log. Both logs would be kept with the study papers. The slip asked only that the recipient record that the holder had been present while the entrance remained unavailable to them. It did not ask the recipient to express regret or to admit faulty operation. No one could obtain access sooner by filing either request. For each participant the door and office slips alternated left and right by a separate balanced list. The clerk sat to one side, with the printed descriptions in view of the participant.

We recorded one destination per person. If the participant marked two destinations, the clerk returned the slip with an instruction to choose one destination or file the record without a request. This rule was in the protocol because previous work found that people would copy the building operator on nearly any correspondence about an entrance [11]. A copy sent for information would not identify the party from whom acknowledgment was sought. Participants could leave without answering any research question. A deliberate choice of filing without a request was a valid outcome, distinguished on the form from an uncompleted assessment.

After collecting the slip the clerk asked two questions about the schedule and one about the contents of the cart. The second seal was then broken. The packet contained an

identical sentence bearing either the identifier of the door or the identifier of the facilities office. It recorded that the holder of the depicted badge had waited for twelve seconds before being admitted. Each possible source had access to the same badge and clock data. The receipt included no reason, promise of service or offer of compensation. Staff explained in advance that the receipt came from a separate audit and could have been prepared by an office other than the one holding the request. This allowed us to vary its source even for people who requested nothing. The participant could accept it and mark the incident closed or leave the incident open, with no further attendance required.

The stamp on the door receipt was a rectangular equipment identifier. We matched its size and ink to the office stamp and printed both headers on a common stock. An unusually large embossed seal in a prototype prompted questions about whether an official inspection had already taken place [12]. We did not carry it forward. No one composed a message on behalf of the cart and the cart did not receive an audit copy. Its badge registered the movement of property rather than the presence of a member of the public.

Outcomes and precision

The primary outcome was election to file a request addressed to the door. The denominator comprised all assigned participants in each film arm; office requests and deliberate filing without a request both counted as zero. The secondary outcome was acceptance of incident closure after the audit receipt. Its denominator included every participant assigned that source, irrespective of where they had filed. Selection on the first decision would have broken the balance conferred by allocation and produced an analysis of people especially likely to prefer one issuer. We recorded the alternatives to

the primary outcome to allow readers to see whether the door gained requests entirely at the expense of the office.

Let R be an indicator of a request to the door, $A = 1$ for cart admission and $A = 0$ for empty opening. With r_a requests among n_a participants allocated film a, the primary contrast was

$$\hat{\delta} = \frac{r_1}{n_1} - \frac{r_0}{n_0}. \tag{1}$$

We report the difference in equation (1) with an uncorrected two-sided 95% Newcombe score interval [13, 14]. The full sample size was fixed at 192, corresponding to 24 complete allocation blocks. With probabilities 0.50 and 0.25 the anticipated standard error of the contrast was 0.068. The target was a half-width of about 0.14 in the anticipated range. We did not power the study for the interaction between the two assignments. The primary request was registered before its source allocation became visible. We therefore pooled the two source groups for that endpoint.

For incident closure we report each cell proportion and the receipt-source contrast separately for each film. The difference between those two risk differences was specified as exploratory, on the percentage-point scale. Its interval uses the sum of the four independent binomial variance estimates. We use the normal approximation for this interaction and show the cell counts which it summarizes. Correct recall of the preset schedule and an accurate account of the cart were manipulation checks. Those checks enter no exclusion rule. We prespecified no comparison by diagnosis and did not collect the information required to make one.

Findings

Of 216 people assessed, 12 were ineligible: five had another appointment within the study interval, four could not complete the audiovisual demonstration, and three had taken part in development. A further 12 declined. The remaining 192 were randomized. Each of 96 people in each film arm saw the assigned film and returned a first slip. Each subgroup of 48 received its allotted receipt and gave a closure decision. There were no missing slips, repeat viewings or departures between the two decisions. Two participants requested a pause before filing. The clerk resumed with the same slip. Neither asked for the apparatus to be stopped. Background characteristics appear in Table 1.

Table 1. Characteristics recorded before the film allocation was opened. Values are counts unless otherwise stated.

Characteristic	Cart admitted (96)	Empty opening (96)
Age, years, median (interquartile range)	39 (29–53)	40 (28–52)
First assessment visit	38	40
Returning appointment	58	56
Requested reading assistance at enrollment	9	11
Prior employment in facilities services	7	6

The door received 51 requests after cart admission and 21 after empty opening. The difference was 31.3 percentage points (95% CI 17.7 to 43.2). Of the 30 additional requests to the door, eight were accounted for by the difference in office requests and 22 by the difference in records filed without any request. These are group margins. We cannot identify an individual who would have moved a request between recipients. The three destinations in Figure 1 correspond to the slips described in Method. The cart

remained visible in both conditions, including in the one that produced the smaller number of door requests.

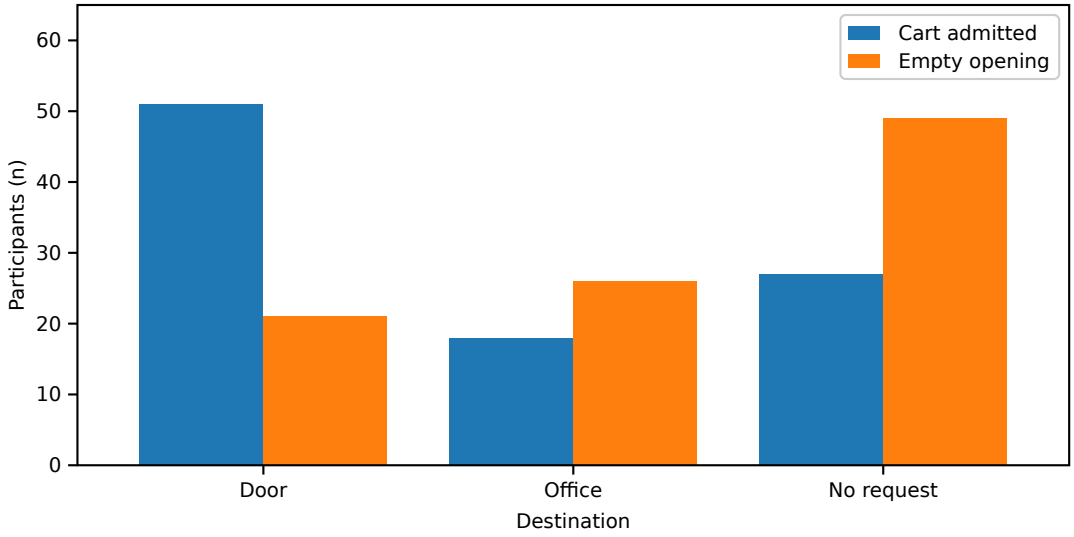


Figure 1. Destination of the first filing decision. Each group of 96 can contribute only one record per person.

On the schedule questions, 87 of 96 participants in the admission arm and 89 of 96 in the empty-opening arm correctly indicated both that opening times were preset and that the visitor badge did not change them. Of those answering both correctly, 46 and 19 respectively had addressed a request to the door. Thus a request was compatible with a correct description of the control arrangement in at least 65 of the 72 people who made one. A different check asked whether a staff member had traveled through the entrance beside the cart. Ninety-four participants answered no in the admission arm and 93 in the empty-opening arm. We kept all five other responses. Confusion about an attendant could change the meaning of the situation for a participant, but could not by itself account for the observed difference of 30 requests.

After the incident had been registered, 61 of the 96 participants who saw cart admission and 79 of the 96 who saw empty opening accepted closure. The source counts are in Table 2 and Figure 2. For cart admission a door receipt increased closure by 22.9 percentage points relative to an office receipt (95% CI 3.7 to 40.0). For empty opening the difference was 2.1 points (95% CI −13.4 to 17.5). The exploratory difference of differences was 20.8 points; the approximate 95% interval ran from −3.3 to 45.0 points. These data accommodate a common source effect in the two films. There were 52 records left open when the study session ended. Leaving a record open had no bearing on the participant’s outpatient appointment.

Table 2. Filing and closure counts by both assignments. The receipt source was concealed until after filing.

Opening	Receipt issuer	Assigned	Requested door	Accepted closure	Left open
Cart admitted	Door	48	26	36	12
Cart admitted	Office	48	25	25	23
Empty opening	Door	48	11	40	8
Empty opening	Office	48	10	39	9

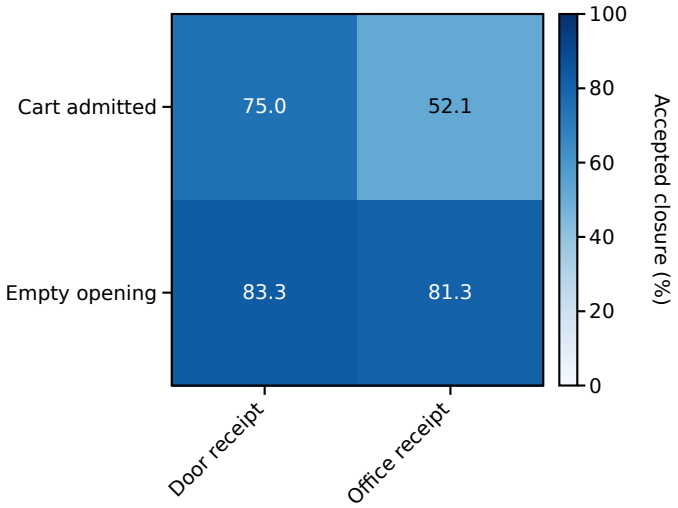


Figure 2. Participants accepting closure after each receipt. Cells show percentages of the 48 assigned to the combination of opening and issuer.

The registration clerk recorded a correction of an initially double-marked slip for six people in the admission arm and four after empty opening. Three of the six ultimately requested door acknowledgment, two requested the office, and one filed without a request. The four in the other arm split equally between office and no request. Keeping the three corrected door filings out of the admission numerator would reduce the difference to 27 out of 96, or 28.1 percentage points, if all ten participants remain in their assigned denominators. The primary analysis used the final signed destination in every case. The first marks are process observations and were not treated as independent requests.

For a numerical check on what could be attributed to misunderstanding, Figure 3 shows requests in people who passed both schedule questions and in the remaining people. The complement of those who passed contains anyone who answered either question incorrectly; we did not classify these participants as endorsing a preference on the part of the mechanism. A person can fail a timing question for many reasons. The nine and seven people in these small cells do not support a test of moderation by comprehension.

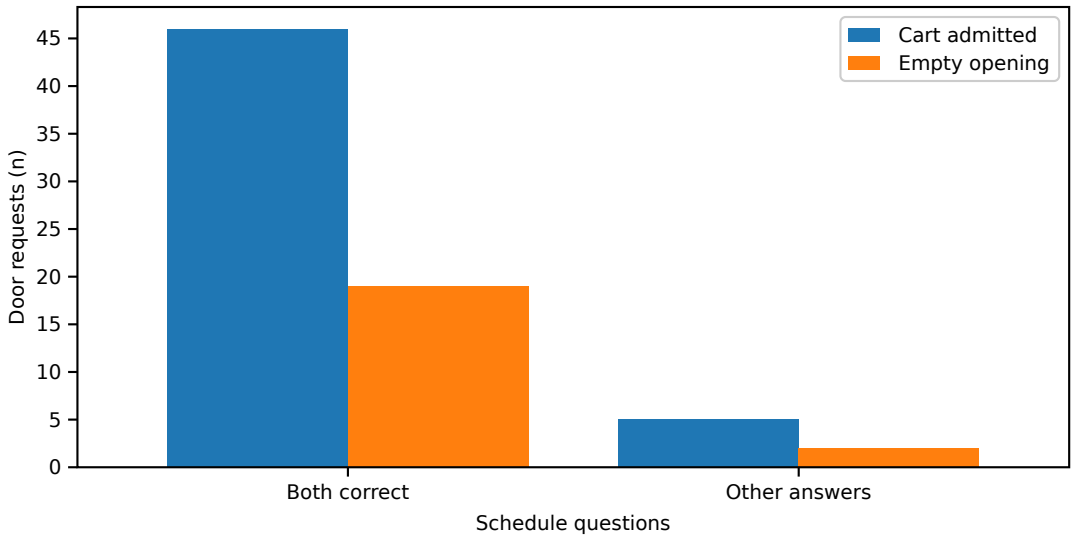


Figure 3. Counts of door requests within the schedule comprehension groups. Total stratum sizes were 87 and 9 for cart admission and 89 and 7 for empty opening.

Interpretation

The patient who signed for the door generally had already been told that the door could do nothing about the event. Most signatories could identify the preset schedule after making the request. To interpret all these requests as erroneous causal beliefs would require assuming that the comprehension answers had little relation to what people believed. There is a simpler reading of the form. A mechanical account explained why the visitor had waited; the door’s record was still the copy on which the visitor wanted the wait entered. The equipment log could have been the appropriate place to establish a fact about an entrance irrespective of whether the equipment understood the fact.

The cart helped separate some of these possibilities. If the entrance had admitted a colleague, the event might have provided information about the colleague’s standing with an operator. The cart had no standing recorded in the experiment apart from its eligibility to cross a line. Nobody had to decide whether it had asked to go first, and it

had no claim on the twelve seconds in dispute. Nevertheless, observing the entrance admit it was sufficient to change which log received the request. An unattended cart need not be a social partner to serve as evidence in a complaint about selective treatment.

A competing explanation concerns the convenience of reporting. Someone who saw the equipment carry out an odd operation could reasonably want a record kept near the source of that operation. A facilities office has many responsibilities; a log carrying only one door’s serial number is already indexed correctly. In both arms participants could choose it, but an opening through which something passed gives them more to enter than an empty opening. The experiment does not distinguish a preference for correct indexing from a preference for personal acknowledgment. Both can be expressed by the same signed request. Investigations using free descriptions have run into much the same problem with phrases such as waiting for the machine to notice [15, 16]. The apparatus here identified the recipient without asking the coder to decide which sense of notice was intended.

We did not call the receipt an apology. In studies of interpersonal repair an apology can express responsibility and a desire to act differently on a later occasion [17, 18]. Neither statement would have been true of this equipment. Our two issuers agreed on every fact, including the duration of the delay. An office could certify those facts from the master log. The door could certify them from its own clock. A subset of participants still considered a log entry insufficient and declined closure. Asking the facilities office to endorse the door receipt after that decision might settle a different question, but it would constitute another intervention. The present record ends after a single acknowledgment.

Several features limit transfer to an ordinary clinical or public entrance. Watching a filmed approach involves no bodily interruption. The participant did not carry a bag, push an actual wheelchair or miss an appointment while a cart passed. The automatic entrance was very quiet and showed nobody behind the glass. In a staffed setting, filing for the door might amount to asking a receptionist to attend to it. An outpatient cohort also gives us no estimate of differences between people receiving care and people in the surrounding community. A comparison of diagnoses based on these observations would have neither an appropriate denominator nor diagnostic ascertainment. Our task measures a choice of recipient under stated conditions. It was not designed to rate symptoms or predict interpersonal behavior outside the room.

The results concerning the receipt issuer require particular care. Distinct source effects can look persuasive side by side even when the statistical evidence for their difference is weak [19]. The last column of Table 2 contains only eight and nine open records in the two empty-opening cells. Moving a small number of closures between those cells would change the interaction substantially. A defensible finding about the first slip does not grant the same precision to a comparison made after two allocations.

Oversight and availability

The Rannevold Clinical Research Committee approved the study (RCR-24-117). Participants knew they would view a staged passage and that the research records would not be sent to the operator of an actual entrance. Everyone provided written consent. The clerk explained both film versions and the purpose of varying the receipt after the closure decision. No adverse event was reported at the session. The

department funded filming and printing. The investigators declare no interest in access-control equipment. Counts underlying the analyses are provided here; the master films show only the cart and a room built for the study.

Filing language and verification

The English translation of the operative sentence read, “I request that the recipient record my presence during the time before admission.” The destination was written above that sentence. Below it appeared a statement that no maintenance action was requested. The third slip read, “File this record without a request.” It had the same signature line and occupied the same envelope. Pilot readers had treated a blank sheet in the third envelope as a failure to complete the experiment [20]. A positive instruction to file without a request made this choice as complete on paper as its alternatives. All envelopes had the visitor’s badge figure so that a person did not need to sign a clinical name.

There is a small arithmetic issue when the two receipt groups are used to reconstruct the comprehension analysis. The questions followed the first filing and preceded release of the receipt. Their correct denominators are the film totals. The relevant joint counts are displayed in Table 3. For example, the complement of the 46 in the first cell is 41 among those who correctly understood the schedule. Using 96 as the denominator for that conditional proportion would include nine people who did not correctly answer both questions. We use the conditional table only to describe the coexistence of correct understanding and a request. The unconditional estimand remains equation (1).

Table 3. Schedule comprehension and first request. Each row represents a full film arm.

Opening	Both correct, door	Both correct, other	Other answers, door	Other answers, other
Cart admitted	46	41	5	4
Empty opening	19	70	2	5

The receipt itself had one line under its stamp, “Visitor [badge] was present for twelve seconds before being admitted.” The printed time used a word in both conditions. Pilot readers associated a machine-formatted timestamp with the door regardless of which issuer appeared on the page [21]. Printing the duration identically made it possible for an office document and a door document to agree down to the last word. The audit copies remain distinguishable only by the source printed above them.

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