The Effect of the First Cue Outcome on the Use of One-Reason Heuristics

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Abstract

One-reason heuristics are decision methods relying on only one good piece of information or one cue. In the past empirical studies of these heuristics, many participants used non-one-reason heuristics in spite of experimental conditions that called for the use of one-reason heuristics. In this study, as one of possible conditions under which one-reason heuristics were more likely to be used, we examined how the decision strategies of participants changed by the outcome of the first cue they bought. In our experiment, participants were able to buy cues before choosing one alternative, out of two, as a correct answer, and the first cue bought can be tied, thus not discriminating the alternatives, or not tied. We found that when the first cue bought was tied participants were more likely to use one-reason heuristics; in addition, they showed more frequent use of frugal strategies and there were no late stoppers—those who bought more than one non-tied cue most of the times. These findings extend the understanding of under what conditions one-reason heuristics are more likely to be used.

Keywords: heuristics, fast-and-frugal, one-reason, decision making

1. Introduction

Choice can be made based on many pieces of information or based on one piece of information. The latter strategy is called one-reason decision making (Gigerenzer & Goldstein, 1996), and it refers to a family of heuristics in which, as soon as one cue is found to favor one alternative above its competitor, the favored alternative is chosen and no further cues are sought or considered. A family of one-reason heuristics includes recognition heuristic, minimalist heuristic, take-the-last (TTL) heuristic, and take-the-best (TTB) heuristic.

Once a cue discriminating two alternatives is found, the minimalist, TTL and TTB heuristics all stop further information search and make a decision based on that cue (Gigerenzer & Goldstein, 1996); this is called the *stopping rule* or *one-reason stop*. That is, they intentionally ignore other possibly existing cues.

The distinction among the three heuristics is made by how cues are searched. The TTB heuristic employs an ordered search based on ecological validity of cues. For this reason, the TTB heuristic can be viewed as a variant of the lexicographic rule (Fishburn, 1974), in which the most important cue or attribute is determined first; all alternatives are then compared based on that cue; and the alternative with the best value on that cue is selected. If cue values for all alternatives are tied, then the next most important cue is determined and used for comparison, and so on. The minimalist heuristic employs a random search for a discriminating cue, and the TTL employs an ordered search based on the knowledge about which cues successfully discriminated alternatives in earlier tasks.

These heuristics often produce a satisfactory decision while consuming far less time, mental energy, and other resources than more information-intensive approaches. Such promising features attracted many theoretical and empirical studies regarding the one-reason heuristics. Researchers tried to find whether or not people actually use the one-reason heuristics, especially the TTB heuristic (e.g., Arndt Bröder, 2000). Others studied under what circumstances one-reason heuristics will likely be used (e.g., Garcia-Retamero & Dhami, 2009; Newell, Weston, & Shanks, 2003; Pachur, Bröder, & Marewski, 2008). Task characteristics have been researched often as people may employ adaptive strategies contingent on task demands (Payne, Bettman, & Johnson, 1993).

Similarly, the adaptive toolbox of fast and frugal heuristics suggests that people select adaptive decision strategies, and influencing factors include information costs, time pressure, memory retrieval, dynamic environments, stimulus formats, intelligence (Arndt Bröder & Newell, 2008).

A general consensus from the past experiments has been that one-reason heuristics are used, but not universally. That is, there have been many participants in the experiments who accumulated more than one discriminating cue before making a decision. This could be explained based on individual confidence level (e.g., Hausmann & Läge, 2008; Lee & Cummins, 2004). For example, in the study of the use of the TTB heuristic between experts and novice, Garcia-Retamero & Dhami (2009), using a paper-and-pencil questionnaire, asked burglars and police officers (together the expert group) and graduate students (the novice group) to choose which one of the two properties is more likely to be burgled. For each of 40 pairs of the properties, eight cues with their values were available. Once the participants were done choosing the properties for the 40 pairs, they were asked to order the eight cues by their usefulness and estimate their weights. Their results suggest that when people face a novel task (i.e., novices), their confidence level does not increase quickly enough by one discriminating cue. On the other hand, for the familiar task (i.e., experts), their confidence level increases quickly; as a result, fewer cues are accumulated. Therefore, the more confident they are with a decision, the fewer pieces of information they will acquire.

In their research on people's choice (based on preference), Bastardi and Shafir (1998) called a piece of information *instrumental* only if this information can alter a decision and *non-instrumental* if this information cannot alter a decision were it available directly. Therefore, the importance or weight of non-instrumental information in decision making should be very low. They conducted multiple empirical tests for studying whether non-instrumental information can become instrumental if it was awaited or pursued. For example, using a paper-and-pencil questionnaire, they asked their participants (undergraduate students) on whether or not they would register for the class that is very interesting but offered only once until they graduate. The class is reputed to be taught by an excellent professor. At the time of registration, the first group of students received the information that a less popular professor, not the excellent one, was going to teach the class, and the other group had to wait to find out who was going to teach the class. Later the second group learned that the less popular professor was going to teach. This information about the instructor was non-instrumental for some students, but the study found that it became instrumental. As a result, more students in the second group decided not to register for the class. In their conclusion, if people have to wait or search for information that appears to be relevant to a decision, the importance (or weight) of that information increases compared to the situation where the same information was available from the start. Further, people often buy non-instrumental information due to their intrinsic preference for being confident in choosing the right decision (Eliaz & Schotter, 2010).

Similar empirical results can be found in medical decision making. Redelmeier et al. (2001) studied whether clinicians make different decisions if they pursue non-instrumental information than if they receive the same information from the start. They conducted scenario experiments similar to those done by Bastardi and Shafir (1998) in the context of a medical field. For example, they asked a group of nurses whether or not he or she would donate a kidney to a 68-year-old relative of his or hers. The first group was assumed to know that they were a suitable match at the time of answering the question. The second group needed to get tested to find out whether or not they were a suitable match. Those who get tested received the information that they were a suitable match. According to the results, the second group of nurses was more likely to donate a kidney than the first group. They concluded that the pursuit of information can cause clinicians to assign more importance to the information than if the same information was immediately available.

In the experiment on one-reason heuristics, participants are typically given the opportunity to buy a cue or cues before making a decision. A cue may favor one alternative over the other, or it may be inconclusive (i.e., "tied"). When the first cue bought was not tied, participants in the past experiments may have been confident depending on the decision strategy employed (e.g., TTB and minimalist). If they were confident, they did *not* need to search for another cue to make a decision. When the first cue bought was tied, on the other hand, participants might have felt zero confidence in their decision—they could not make a decision unless they guessed. As a result, they tended to search for the next relevant cue that would provide a compelling reason to choose one over the other. Participants whose first cue bought is tied are likely to search for their first non-tied cue more actively (hoping to find a non-tied cue) than participants whose first cue bought was not-tied. Further, when the first purchased cue is tied, participants have to wait longer for information discriminating the two alternatives.

This waiting makes the cumulative cost before receiving discriminating information higher, which in turn, makes information search more "active."

As mentioned earlier, such waiting or active search can increase the perceived importance of a cue. Such an increased importance (or weight) of a cue can boost the confidence in decision making (Griffin & Tversky, 1992).When participants find a non-tied cue eventually after active search, they may be feel confident in their decisions due to increased perceived importance of the cue. The upshot is that participants whose first cue bought is tied may stop information search immediately after finding their first non-tied cue, not pursuing for second non-tied cue. This may suggest that, when the values of the first purchased cue do not distinguish which alternative is better, that cue is not instrumental[1] in choosing one alternative over the other. Yet, such a cue may affect another decision—that is, it may be instrumental—such as a selection of decision strategies. In this research, we study whether or not strategy selection differs by whether or not the first cue bought is tied.

2. Method

1.1. Participants

Thirty nine undergraduate students (22 males and 17 females; mean age = 22.46 years) in a south-eastern US university participated voluntarily in this study. Participants of the studies received course credit. The experiment utilized the payoff of imaginary dollars, and there was no monetary compensation in the study.

1.2. Design and procedure

The experiment in this paper was based on Newell et al.'s (2003) experiment 1.[2,3] It was done through a program built on Microsoft Visual Basic and was carried out on PCs with the Microsoft Windows operating system.

The cover story explained that participant's task was to choose the more profitable one between stocks from two fictional firms (Stock *A* and Stock *B*). They were asked to repeat this task 180 times—three rounds of 60 trials. Before they began the experiment, participants had been given 1,000 imaginary dollars in their private accounts. They were told that the goal of the experiment was to earn as much money in their private accounts as they could by choosing the more profitable stock.

To help the participant's task, in each trial, the following six binary cues (i.e., Yes or No) describing each stock were all presented on the screen at the same time without showing their values for each alternative:

1. Was the share trend positive over the last few months?
2. Does the company have financial reserves?
3. Does the company invest in new projects?
4. Is it an established company?
5. Is the company listed on the Standard & Poor's?
6. Is the employee turnover low?

Once participants clicked a "Purchase" button right next to a cue, the values of the cue were shown (e.g., Yes for *A* and No for *B*). Participants were allowed to buy up to six cues in each trial before they chose a stock, and their private accounts decreased immediately by $1 for each cue purchased.

The validities[4] of the cues were .90, .85, .80, .75, .70, and .65, which are of compensatory information structure[5].

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[1] Before cue values are revealed, all cues in our experiments are potentially instrumental. However, once the cue values are revealed and tied, the cue is not instrumental.

[2] There were four differences between their design and ours: the compensation method for participants (real vs. imaginary money), the unit of currency (British penny (p) vs. dollars), information cost (1p vs. $1), and payoff amount (7p vs. $7). The additional modification was that the term *Financial Times and the London Stock Exchange* (FTSE) index used in a cue description in the original experiment was replaced with the *Standard & Poor's* index.

[3] In effect, their scenario corresponds to a world in which the probability that stock A is more profitable than stock B depends on six strictly independent attributes corresponding to the six cues.

[4] Validity of cue j = P(cue j favors stock i | stock i is the more profitable AND cue j is not tied) where i = A or B. When no non-tied cues have been seen previously, the symmetry of the information environment makes this value numerically equal to P(stock i is the more profitable | cue j favors stock i) although the two forms are mathematically very different, and numerically different if a non-tied cue has already been observed.

The positions of the cues on the screen were the same for all participants, but which validity goes with which cue name was randomly determined for each participant. Once the validities of cues were determined for each participant, they remained the same through the trials for each participant.

Participants were instructed that they should try to figure out which cues were the most useful in making correct predictions since not all cues were equally informative. A written rank (i.e., hint) of the cues based on their validities was given without showing actual values of the validities to the participants at the end of the first round (i.e., after the 60th trial) and again at the end of the second round (i.e., after the 120th trial).

Once a participant has finished buying cues and selected a stock, the computer calculates and displays the conditional probability that stock A versus stock B is the more profitable, by applying Bayes theorem to the six cues whether purchased or not. The computer then uses this probability to randomly choose one stock as the "actual" more profitable one. If this matches the one chosen by the participant, his or her private account is increased by $7. If they were wrong, there was no payoff; that is, money spent to purchase information (if any) was not recovered.

3. Result

We considered only the last 60 trials in the analysis. We defined three stopping rules: early stop, one-reason stop, and late stop. Early stop refers to trials in which participants bought at least one cue, all of which are tied, and made a decision; the one-reason stops refer to trials in which no cues were bought after a non-tied cue was purchased; and the late stops refers to trials in which more cues were bought after the first non-tied cue was purchased. Note that the early stop is possible only when the first cue bought is tied.

There was only one strict one-reason stopper who used one-reason stops throughout all 60 trials. We classified participants with small percentage of non-one-reason stops (20% or less) as one-reason stoppers; that is, those who used the one-reason stop 48 times or more out of 60 trials. Overall six out of 39 participants could be classified as one-reason stoppers. Among these six, the highest percentage of the non-one-reason stops (i.e., early stop and late stop) is 15% (9 out of 60 trials). This result is in line with the earlier empirical findings—some use it and some don't. Participants' uses of different stops when the first purchased was tied and when not tied are shown in the appendix.

Next we considered the analysis of the stopping rule based on the cue values of the first purchased cue. We excluded two participants from the subsequent analysis because they did not buy any cue in most of the trials (i.e., guessed). By the design of the experiment, roughly 50% of all first cues bought were tied.

We compared the average number of cues bought when the first cue bought was tied with the average number of cues bought when not tied. In addition, we examined the cue buying patterns in the raw data collected and found that ten participants bought the same number of cues regardless of the outcome of the first cue bought. Four participants bought only one cue throughout most of the 60 trials; three participants bought two cues; two participants bought three cues; and one participant bought all six cues. We call this strategy the fixed number of cues. There were 27 participants who used neither guessing nor the fixed number of cues. The subsequent analysis in this section is based these 27 participants.

[5] For example, if the only information is that cue 1 favors stock A, the posterior probability is 90% in favor of A. If it is known that 1 favors stock A but cue 2 favors stock B, the posterior probability is 61% in favor of A. But, if it is known that 1 favors stock A but cues 2 and 3 both favor stock B, the posterior probability is 72% in favor of stock B.

Table 1. Result: crosstab of strategies based on the first purchased cue

Tied / Not Tied	Non-late (Late < 20%) Early or One (One-reason <80%)	Non-late (Late < 20%) One-reason (One-reason ≥80%)	Mixed (20% ≤ Late <80%)	Late (Late>80%)	Total	Average # Cues
One-reason (Late < 20%)	2 (p8, p9)	5 (p6-p7, p10-11,p12)	0	0	7	1.07
Mixed (20% ≤ Late <80%)	3 (p13, p16-17)	2 (p14-15)	2 (p18, p21)	0	7	1.54
Late (Late ≥ 80%)	1 (p24)	2 (p25-26)	10 (p27-33, p35, p37-38)	0	13	2.97
Total	6	9	12	0	27	
Average # Cues	2.36	2.89	3.53	N/A		

When the first purchased cue is not tied, the most common strategy is late stop; 13 of the 27 subjects bought additional cues at least 80% of the time. The remaining 14 subjects were evenly divided between one-reason decision makers (those who made a decision after the first cue at least 80% of the time), and decision makers who showed no strong pattern (at least 20% one reason and at least 20% late stop).

On trials when the first cue was not tied, one reason decision makers bought an average of 1.07 cues, mixed (late or one-reason) strategy decision makers bought an average of 1.54 cues, and late stop decision makers bought an average of 2.97 cues.

When the first cue was tied, a very different picture emerges. Not a single one of the 27 subjects used late stopping 80% or more of the time. Nine subjects consistently used one reason decision making. The remaining 18 subjects divided most of their decision making between one-reason and late stopping (12 subjects) or between one-reason and early stopping (6 subjects). (An additional strategy, early stopping, is also defined when the first cue is tied, but none of the subjects used it 80% of the time.)

On trials when the first cue was tied, decision makers relying predominantly on a mixture of early stopping and one reason decision making makers bought an average of 2.36 cues, one reason decision makers bought an average of 2.90 cues, and mixed strategy decision makers bought an average of 3.53 cues.

Closer examination of the body of

Table 1 reveals that 10 of the 13 subjects who used late stopping on 80% or more of the trials whose first cue was not tied added one-reason decision making to their repertoire without abandoning late stopping on trials whose first cue was tied. The remaining three who used late stopping over 80% of the time when the first cue was not tied used that strategy less than 20% of the time; two of them used one reason stopping 80% or more of the times the first cue was tied, while the remaining subject used a mixture of one reason stopping and early stopping.

Overall, not a single subject fells into a less frugal category when the first cue was tied than their category when it was not tied. Seven subjects fell into the same category for tied first cue as they did for non-tied. The remaining 20 subjects, 74%, fell into a more frugal category when the first cue was tied than when it was not tied.Averaging across all 27 subjects, the mean number of *non-tied* cues purchased when the first cue was not tied is 1.56 and the mean number of *non-tied* cues purchased when the first cue was tied is 1.15, a difference of 0.41 with a 95% confidence interval of (0.2856, 0.5366).

4. Discussion

Most published discussions of stopping heuristics in human decision making focus on the quantity of information that has been acquired as a basis for whether or not to spend time, money, or other resources on acquiring more before committing to a final decision. One-reason decision making heuristics (e.g., Fishburn, 1974; Gigerenzer & Goldstein, 1996; Gigerenzer & Todd, 1999) stop as soon as one piece of information has been successfully acquired. Other heuristic such as Weight of Evidence (Weed, 2005) or the CONF heuristic described by Karelaia (2006), call for acquisition of more than one piece of information. In almost every case, however, failed attempts to gain information are more or less implicitly ignored or treated as *non-instrumental* (Bastardi & Shafir, 1998), with no effect on decision making behavior.

We examined how the decision strategies of participants change depending on the outcome of the first cue bought. Twenty of the 39 participants changed their strategies, and all of them became more frugal when the first cue bought was tied. The other 19 employed various strategies consistently throughout all trials, such as guessing, fixed number of cues, one-reason strategy, and mixed strategy. For these 19 participants, non-tied first cue was in fact not instrumental.

Every one of the 20 participants whose preferred strategy differed depending on whether or not the first cue was uninformative (i.e. tied) used a less-frugal strategy when the first cue was not tied and a more-frugal strategy such as one reason decision making or guessing when the first cue was tied. In particular, none of the 13 participants who consistently bought additional information after receiving a non-tied first cue (a late stopping heuristic) showed a pattern of buying more information after the first non-tied cue when the first cue was tied. Since the behavior of participants when the first cue bought was tied changed from the behavior when not tied, tied cues can be considered instrumental in strategy selection for these participants.

For the 20 participants who were either mixed stoppers or late stoppers when the first purchased cue was not tied, we tested whether or not the mean proportion of late stop when the first cue bought was not tied is significantly greater than that of late stop when tied, that is, $\mu_{\text{not-tied}} > \mu_{\text{tied}}$. The paired sample *t*-test confirms that the mean proportion of late stops when the first cue bought was not tied is significantly greater than that of late stops when tied ($t = 7.61$; $df=19$; $p < .0001$). Such an effect could be explained, at least partially, by increased perceived importance of the first non-tied cue when the first cue bought was tied. As addressed earlier, active search for a non-tied cue, when the first cue bought was tied, can increase the perceived importance of such a cue (Bastardi & Shafir, 1998; Redelmeier et al., 2001).

The expected payoff per trial of guessing is $3.50, and that of the TTB heuristic is $3.99[6]. We also calculated the expected payoff per trial of other strategies. One of them is what we call 3-cue TTB, which goes as follows. Buy at most three cues according to the TTB heuristic; if the third cue is tied, then guess. The expected payoff of this strategy is $4.025. That is, the early stop in some situations in this experiment is financially better than to keep buying more cues to follow the TTB heuristic. This may explain some of early stops in the study.

Due to the high information cost, the additive linear models, using all six cues, is always worse than guessing in this experiment in terms of net gains.[7] Its expected payoff per trial is less than $1. Quantitatively, a late stop may or may not improve the expected payoff in this experiment due to compensatory cues. (It would not improve the expected payoff if the validities were noncompensatory.) For future research, it would be interesting to study whether or not a late stop is used less often when noncompensatory cues are used, that is, when the late stop does not improve the expected payoff at all.

5. Limitations and Further Research

These findings have to be interpreted carefully, however. We need to consider the effect of the information cost. Participants' goal was to increase their private account as much as possible. That is, most of them wanted to pick the correct answer while spending as little money as possible. If the first cue bought was tied, participants may have felt that they wasted money in that the purchased cue could not help them find the correct answer. Unless they planned to guess after the first cue, this in turn increased participants' financial burden as they needed to buy more cues. Since about the half the time any cue was tied, participants could have been reluctant to buy another cue in worrying that the next cue they buy may also be tied. Consequently, the desire of having more than one non-tied cue could have been diminished, which resulted in more one-reason stops when the first cue bought was tied.

Another implication is that the one-reason heuristics could be to be used less often when the discrimination rates of more valid cues are high. That is, if people expect that they can acquire discriminating (i.e., non-tied) cues easily, they may choose to use non-one-reason heuristics. Therefore, future research should design experiments controlling discrimination rate of cues to test how people adapt to environment in terms of strategy selection.

[6] X (possible payoffs of the TTB heuristic) = {$6, $5, $4, $3, $2, $1, -$1, -$2, -$3, -$4, -$5, -$6}, P(x) = {.4500, .2125, .1000, .0469, .0219, .0203, .0500, .0375, .0250, .0156, .0094, .0109}.

[7] The predictive accuracy of the linear additive models is better than that of guessing or one-reason heuristics in this experiment.

This study suggests the possibility of another heuristic that recognizes the effect of cues that turn out to be non-instrumental with respect to immediate final choice but instrumental with respect to information seeking strategy. Such a heuristic might be termed "One Quick Reason"; the probability of guessing increases with the number of failed attempts to obtain information (e.g. tied cues in this study). Further research in which the aforementioned limitations of this study are controlled for may shed light on this possibility.

References

Bastardi, A., & Shafir, E. (1998). On the pursuit and misuse of useless information. *Journal of Personality and Social Psychology*, *75*(1), 19-32.

Bröder, Arndt. (2000). Assessing the empirical validity of the "Take-The-Best" heuristic as a model of human probabilistic inference. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *26*(5), 1332-1346.

Bröder, Arndt, & Newell, B. R. (2008). Challenging some common beliefs: Empirical work within the adaptive toolbox metaphor. *Judgment and Decision Making*, *3*(3), 205-214.

Eliaz, K., & Schotter, A. (2010). Paying for confidence: An experimental study of the demand for non-instrumental information. *Games and Economic Behavior*, *70*(2), 304-324. doi:10.1016/j.geb.2010.01.006

Fishburn, P. C. (1974). Lexicographic orders, utilities and decision rules: A survey. *Management Science*, *20*, 1442-1471.

Garcia-Retamero, R., & Dhami, M. K. (2009). Take-the-best in expert-novice decision strategies for residential burglary. *Psychonomic Bulletin & Review*, *16*(1), 163-169. doi:10.3758/PBR.16.1.163

Gigerenzer, G., & Goldstein, D. G. (1996). Reasoning the fast and frugal way: Models of bounded rationality. *Psychological review*, *103*(4), 650-669.

Gigerenzer, G., & Todd, P. M. (1999). Fast and frugal heuristics: The adaptive toolbox. In G. Gigerenzer, P. M. Todd, & The ABC Research Group (Eds.), *Simple heuristics that make us smart* (pp. 3-34). New York: Oxford University Press.

Griffin, D., & Tversky, A. (1992). The weighing of evidence and the determinants of confidence. *Cognitive Psychology*, *24*(3), 411-435. doi:10.1016/0010-0285(92)90013-R

Hausmann, D., & Läge, D. (2008). Sequential evidence accumulation in decision making. *Judgment and Decision Making*, *3*(3), 229-243.

Karelaia, N. (2006). Thirst for confirmation in multi-attribute choice: Does search for consistency impair decision performance? *Organizational Behavior and Human Decision Processes*, *100*(1), 128-143.

Lee, M. D., & Cummins, T. D. R. (2004). Evidence accumulation in decision making: Unifying the "take the best" and the "rational" models. *Psychonomic Bulletin & Review*, *11*(2), 343-352.

Newell, B., Weston, N. J., & Shanks, D. R. (2003). Empirical tests of a fast-and-frugal heuristic: Not everyone "takes-the-best." *Organizational Behavior and Human Decision Processes*, *91*(1), 82-96.

Pachur, T., Bröder, A., & Marewski, J. N. (2008). The recognition heuristic in memory based inference: is recognition a non compensatory cue? *Journal of Behavioral Decision Making*, *21*(2), 183-210.

Payne, J. W., Bettman, J. R., & Johnson, E. J. (1993). *The adaptive decision maker*. Cambridge: Cambridge University Press.

Redelmeier, D. A., Shafir, E., & Aujla, P. S. (2001). The Beguiling Pursuit of More Information. *Medical Decision Making*, *21*(5), 376 -381. doi:10.1177/0272989X0102100504

Weed, D. L. (2005). Weight of Evidence: A Review of Concept and Methods. *Risk Analysis*, *25*(6), 1545-1557.

Appendix. Participant data

Guessers (excluded from the analysis): p5 and p19

Fixed number of cues: p1-4 (1 cue); p20, p22-23 (2 cues); p34, p36 (3cues); p39 (6 cues)

One-reason stoppers (overall): p6-8, p10-12

	Not tied					Tied							
Participants	one-reason stops	late stops	Avg # of cues purchased	% Late stop: not tied	Strategy	early stops	one-reason stops	late stops	Avg # of cues purchased	% Late stop: tied	% one-reason: tied	Strategy	95% confidence interval for the proportion difference
p1	27		1			33			1				
p2	29		1			26	4		1.1				
p3	35		1			24		1	1.2				
p4	31		1			27	2		1.2				
p5	7		1			1	3		2.3				
p6	31		1	0%	1-reason	1	28		2.5	0%	97%	1-reason	
p7	33		1	0%	1-reason		27		3	0%	100%	1-reason	
p8	34	1	1	3%	1-reason	8	17		2.2	0%	68%	EO	(-0.03, 0.08)
p9	32	1	1	3%	1-reason	8	15		2.5	0%	65%	EO	(-0.03, 0.09)
p10	27	1	1	4%	1-reason		27	5	3.2	16%	84%	1-reason	(-0.26, 0.02)
p11	28	2	1.1	7%	1-reason		30		3.1	0%	100%	1-reason	(-0.02, 0.16)
p12	28	6	1.3	18%	1-reason		25	1	2.7	4%	96%	1-reason	(-0.01, 0.29)
p13	23	8	1.3	26%	Mixed	11	18		2.1	0%	62%	EO	(0.10, 0.41)
p14	19	8	1.4	30%	Mixed		31	2	2.9	6%	94%	1-reason	(0.05, 0.43)
p15	18	17	1.5	49%	Mixed		24	1	2.8	4%	96%	1-reason	(0.26, 0.63)
p16	17	12	1.6	41%	Mixed	6	23	2	2.5	6%	74%	EO	(0.15, 0.55)
p17	11	16	1.8	59%	Mixed	15	15	3	2.1	9%	45%	EO	(0.29, 0.71)
p18	20	11	1.8	35%	Mixed		13	16	3.4	55%	45%	Mixed	(-0.44, 0.05)
p19		1	2						N/A				
p20		21	2			23	16		2				
p21	6	11	2	65%	Mixed	2	6	4	2.8	33%	50%	Mixed	(-0.04, 0.66)
p22		35	2			10	15		2.3				
p23	1	29	2.1			12	17	1	2.1				
p24		14	2.3	100%	Late	2	11	1	3.2	7%	79%	EO	(0.79, 1.00)
p25	1	20	2.4	95%	Late		23	2	3	8%	92%	1-reason	(0.73, 1.00)
p26	1	27	2.5	96%	Late	1	31		2.8	0%	97%	1-reason	(0.90, 1.00)
p27	1	30	2.5	97%	Late		22	7	3.3	24%	76%	Mixed	(0.56, 0.89)
p28		27	2.5	100%	Late	2	22	9	2.6	27%	67%	Mixed	(0.58, 0.88)
p29		40	2.7	100%	Late		12	8	3.5	40%	60%	Mixed	(0.39, 0.81)
p30		32	2.8	100%	Late		18	10	3.7	36%	64%	Mixed	(0.47, 0.82)
p31		25	2.8	100%	Late		25	10	3.1	29%	71%	Mixed	(0.56, 0.86)
p32		32	2.8	100%	Late		13	15	3.8	54%	46%	Mixed	(0.28, 0.65)
p33		17	3.1	100%	Late		2	6	4.6	75%	25%	Mixed	(-0.05, 0.55)
p34		32	3.1				14	14	3.4				
p35	1	34	3.1	97%	Late	2	11	11	3.7	46%	46%	Mixed	(0.31, 0.72)
p36		31	3.2			3	13	13	3.3				
p37		33	4.1	100%	Late		8	19	4.1	70%	30%	Mixed	(0.12, 0.47)
p38		36	4.3	100%	Late		5	19	4.5	79%	21%	Mixed	(0.05, 0.37)
p39		27	6				1	32	6				