## **Supplementary Materials**

## **ACM Reference Format:**

Table 1. Univariate Individual-Level Summaries for Carbohydrate Intake Data

| Protoform Type                | Summary   | Truth<br>Value | Imprecision | Covering | Appropriateness | Relevance |
|-------------------------------|---|----------------|-------------|----------|-----------------|-----------|
| Standard<br>Evaluation (TW)   | In the past full week, your carbohydrate intake has been very high.   | N/A            | 0.8         | 1        | 0.92            | 0.47      |
| Standard<br>Evaluation (sTW)  | On some of the days in the past week, your carbohydrate intake has been low.  | 0.71           | 1           | 0.57     | 0.35            | 1         |
| Standard<br>Evaluation + Goal | On more than half of the days in the past week, you did not reach your goal to keep your carbohydrate intake low.   | 1              | 1           | 1        | 0               | 1         |
| Comparison                    | Your carbohydrate intake was higher than it was the week before.  | N/A            | 0.67        | 1        | 0               | 1         |
| Comparison + Goal             | You did not do as well overall with keeping your car-<br>bohydrate intake low than you did the week before.   | N/A            | N/A         | 1        | 0               | 1         |
| Standard Trend                | Half of the time, your carbohydrate intake increases from one day to the next.  | 0.71           | 0.84        | 0.53     | 0               | 1         |
| Cluster-Based<br>Pattern      | This past week, your carbohydrate intake was moderate, then high, then very low, then high. During all of the weeks similar to this past one, your carbohydrate intake dropped the next week. | 1              | 1           | 0.6      | 0.61            | 1         |
| Standard Pattern              | The last time you had a week like this past one, your carbohydrate intake dropped the next week.  | N/A            | 1           | 1        | 0.61            | 1         |
| Day If-Then<br>Pattern        | There is 100% confidence that, when your carbohydrate intake follows the pattern of being very low on a Saturday, your carbohydrate intake tends to be moderate the next Sunday.              | N/A            | N/A         | 1        | 0.8             | 0.2       |
| Day-Based Pattern             | Your carbohydrate intake tends to be low on Wednesdays.   | 1              | 1           | 0.4      | 0.19            | 1         |
| Goal Assistance               | In order to better to follow the 2000-calorie diet, you should increase your carbohydrate intake.   | N/A            | N/A         | N/A      | N/A             | N/A       |

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Table 2. Univariate Group-Level Summaries for Carbohydrate Intake Data

| Protoform Type                   | Summary  | Truth<br>Value | Imprecision | Covering | Appropriateness | Relevance |
|----------------------------------|--|----------------|-------------|----------|-----------------|-----------|
| Standard<br>Evaluation<br>(TW)   | Some of the participants in this study had a moderate carbohydrate intake in the past full week.   | 1              | 0.85        | 0.35     | 0               | 1         |
| Standard<br>Evaluation<br>(sTW)  | Almost none of the participants in this study had a moderate carbohydrate intake on more than half of the days in the past week.   | 1              | 1           | 0.04     | 0               | 0.29      |
| Standard<br>Evaluation<br>+ Goal | Some of the participants in this study did not reach their goal to keep their carbohydrate intake low on all of the days in the past week.   | 0.76           | 0.9         | 0.42     | 0               | 1         |
| Comparison                       | Some of the participants in this study had a similar carbohydrate intake than they did the week before.  | 1              | 0.68        | 0.39     | 0               | 1         |
| Comparison +<br>Goal             | Some of the participants in this study did about the same with keeping their carbohydrate intake low than they did the week before.  | 1              | 0.68        | 0.39     | 0               | 1         |
| Standard<br>Trend                | Half of the participants in this study increase their carbohydrate intake from one day to the next half of the time.   | 0.52           | 1           | 0.55     | 0               | 1         |
| Cluster-Based<br>Pattern         | After looking at clusters containing weeks similar to this past one, it can be seen that some of the participants with these clusters may see a drop in their carbohydrate intake next week. | 0.99           | 0.67        | 0.3      | 0               | 1         |
| Standard<br>Pattern              | Based on the most recent weeks similar to this past one, it can be seen that some of the participants may see a drop in their carbohydrate intake next week.                                 | 1              | 0.67        | 0.32     | 0               | 1         |
| Day-Based<br>Pattern             | Some of the participants in this study tend to have a low carbohydrate intake on Mondays.  | 0.79           | 1           | 0.26     | 0               | 1         |

Table 3. Univariate Individual-Level Summaries for Calorie Intake Data (TW = month)

| Protoform Type                   | Summary   | Truth<br>Value | Imprecision | Covering | Appropriateness | Relevance |
|----------------------------------|---|----------------|-------------|----------|-----------------|-----------|
| Standard<br>Evaluation<br>(TW)   | In the past full month, your calorie intake has been high.  | N/A            | 0.8         | 1        | 0.8             | 1         |
| Standard<br>Evaluation<br>(sTW)  | On some of the days in the past month, your calorie intake has been high.   | 1              | 0.82        | 0.3      | 0.12            | 1         |
| Standard<br>Evaluation<br>+ Goal | On more than half of the days in the past month, you did not reach your goal to keep your calorie intake low.   | 1              | 0.56        | 0.73     | 0.01            | 1         |
| Comparison                       | Your calorie intake was higher than it was the month before.  | N/A            | 0.66        | 1        | 0               | 1         |
| Comparison +<br>Goal             | You did not do as well overall with keeping your calorie intake low than you did the month before.  | N/A            | N/A         | 1        | 0               | 1         |
| Standard<br>Trend                | Half of the time, your calorie intake increases from one day to the next.   | 0.71           | 0.84        | 0.53     | 0               | 1         |
| Day If-Then<br>Pattern           | There is 100% confidence that, when your calorie intake follows the pattern of being very high on a Thursday, your calorie intake tends to be moderate the next Friday. | N/A            | N/A         | 0.53     | 0.83            | 0.17      |
| Day-Based<br>Pattern             | Your calorie intake tends to be low on Mondays.   | 1              | 0.82        | 0.36     | 0.12            | 1         |
| Goal<br>Assistance               | In order to better to follow the 2000-calorie diet, you should decrease your calorie intake.  | N/A            | N/A         | N/A      | N/A             | N/A       |

Table 4. Univariate Group-Level Summaries for Calorie Intake Data (TW = month)

| Protoform Type                   | Summary   | Truth<br>Value | Imprecision | Covering | Appropriateness | Relevance |
|----------------------------------|---|----------------|-------------|----------|-----------------|-----------|
| Standard<br>Evaluation<br>(TW)   | Half of the participants in this study had a moderate calorie intake in the past full month.                                      | 0.96           | 0.89        | 0.5      | 0               | 1         |
| Standard<br>Evaluation<br>(sTW)  | Almost none of the participants in this study had a moderate calorie intake on half of the days in the past month.                | 1              | 1           | 0.07     | 0               | 0.003     |
| Standard<br>Evaluation<br>+ Goal | Some of the participants in this study reached their goal to keep their calorie intake low on most of the days in the past month. | 1              | 1           | 0.37     | 0               | 1         |
| Comparison                       | Half of the participants in this study had a about the same calorie intake than they did the month before.                        | 0.96           | 0.69        | 0.5      | 0               | 1         |
| Comparison +<br>Goal             | Half of the participants in this study did about the same with keeping their calorie intake low than they did the month before.   | 0.96           | 0.69        | 0.5      | 0               | 1         |
| Standard<br>Trend                | More than half of the participants in this study increase their calorie intake from one day to the next half of the time.         | 0.91           | 1           | 0.59     | 0               | 1         |
| Day-Based<br>Pattern             | Some of the participants in this study tend to have a low calorie intake on Mondays.  | 0.81           | 1           | 0.26     | 0               | 1         |
| Goal<br>Assistance               | All of the participants in this study have<br>been given advice to decrease their calo-<br>rie intake.                            | 1              | 0           | 1        | 1               | 1         |

Table 5. Univariate Individual-Level Summaries for Calorie Intake Data (TW = None)

| Protoform Type                   | Summary   | Truth<br>Value | Imprecision | Covering | Appropriateness | Relevance |
|----------------------------------|---|----------------|-------------|----------|-----------------|-----------|
| Standard<br>Evaluation<br>(sTW)  | On some of the days, your calorie intake has been low.  | 0.67           | 0.8         | 0.24     | 0.23            | 0.24      |
| Standard<br>Evaluation<br>+ Goal | On more than half of the days, you did<br>not reach your goal to keep your calorie<br>intake low. | 1              | 0.57        | 0.75     | 0               | 1         |
| Standard<br>Trend                | Half of the time, your calorie intake increases from one day to the next.                         | 0.71           | 0.84        | 0.53     | 0               | 1         |
| Day-Based<br>Pattern             | Your calorie intake tends to be low on Mondays.   | 1              | 0.82        | 0.36     | 0.12            | 1         |

Table 6. Univariate Group-Level Summaries for Calorie Intake Data (TW = None)

| Protoform Type                   | Summary   | Truth<br>Value | Imprecision | Covering | Appropriateness | Relevance |
|----------------------------------|---|----------------|-------------|----------|-----------------|-----------|
| Standard<br>Evaluation<br>(sTW)  | Some of the participants in this study had a low calorie intake on some of the days.                                      | 1              | 1           | 0.32     | 0               | 1         |
| Standard<br>Evaluation<br>+ Goal | Half of the participants in this study reached their goal to keep their calorie intake low on most of the days.           | 0.96           | 0.94        | 0.5      | 0               | 1         |
| Standard<br>Trend                | More than half of the participants in this study increase their calorie intake from one day to the next half of the time. | 0.91           | 1           | 0.59     | 0               | 1         |
| Day-Based<br>Pattern             | Some of the participants in this study tend to have a low calorie intake on Mondays.                                      | 0.81           | 1           | 0.26     | 0               | 1         |

Table 7. Univariate Individual-Level Summaries for Calorie Intake Data (alphabet size = 3)

| Protoform Type                | Summary  | Truth<br>Value | Imprecision | Covering | Appropriateness | Relevance |
|-------------------------------|--|----------------|-------------|----------|-----------------|-----------|
| Standard<br>Evaluation (TW)   | In the past full week, your calorie intake has been high.  | N/A            | 0.67        | 1        | 0.83            | 1         |
| Standard<br>Evaluation (sTW)  | On more than half of the days in the past week, your calorie intake has been moderate.   | 1              | 1           | 0.71     | 0.36            | 1         |
| Standard<br>Evaluation + Goal | On most of the days in the past week, you did not reach your goal to keep your calorie intake low.   | 1              | 0.65        | 0.86     | 0.11            | 1         |
| Comparison                    | Your calorie intake was higher than it was the week before.  | N/A            | 0.68        | 1        | 0               | 1         |
| Comparison + Goal             | You did not do as well overall with keeping your calorie intake low than you did the week before.  | N/A            | N/A         | 1        | 0               | 1         |
| Standard Trend                | Half of the time, your calorie intake increases from one day to the next.  | 0.71           | 0.84        | 0.53     | 0               | 1         |
| Cluster-Based<br>Pattern      | This past week, your calorie intake was moderate, then low, then moderate, then high, then moderate. During some of the weeks similar to this past one, your calorie intake dropped the next week. | 1              | 0.68        | 0.4      | 0.05            | 1         |
| Standard Pattern              | The last time you had a week like this past one, your calorie intake stayed the same the next week.  | N/A            | 0.68        | 1        | 0.61            | 1         |
| Day If-Then<br>Pattern        | There is 100% confidence that, when your calorie in-<br>take follows the pattern of being high on a Saturday,<br>your calorie intake tends to be high the next Sunday.                             | N/A            | N/A         | 1        | 0.64            | 0.36      |
| Day-Based Pattern             | Your calorie intake tends to be moderate on Mondays.   | 1              | 1           | 0.32     | 0.03            | 1         |
| Goal Assistance               | In order to better to follow the 2000-calorie diet, you should decrease your calorie intake.   | N/A            | N/A         | N/A      | N/A             | N/A       |

Table 8. Univariate Group-Level Summaries for Calorie Intake Data (alphabet size = 3)

| Protoform Type                   | Summary  | Truth<br>Value | Imprecision | Covering | Appropriateness | Relevance |
|----------------------------------|--|----------------|-------------|----------|-----------------|-----------|
| Standard<br>Evaluation<br>(TW)   | More than half of the participants in this study had a moderate calorie intake in the past full week.  | 0.68           | 0.7         | 0.57     | 0               | 1         |
| Standard Evaluation (sTW)        | Some of the participants in this study had a moderate calorie intake on more than half of the days in the past week.   | 0.72           | 1           | 0.24     | 0               | 1         |
| Standard<br>Evaluation<br>+ Goal | Some of the participants in this study reached their goal to keep their calorie intake low on all of the days in the past week.  | 0.84           | 0.87        | 0.42     | 0               | 1         |
| Comparison                       | More than half of the participants in this study had a about the same calorie intake than they did the week before.  | 0.55           | 0.7         | 0.56     | 0               | 1         |
| Comparison +<br>Goal             | More than half of the participants in this study did about the same with keeping their calorie intake low than they did the week before.   | 0.55           | 0.7         | 0.56     | 0               | 1         |
| Standard<br>Trend                | More than half of the participants in this study increase their calorie intake from one day to the next half of the time.  | 0.91           | 1           | 0.59     | 0               | 1         |
| Cluster-Based<br>Pattern         | After looking at clusters containing weeks similar to this past one, it can be seen that more than half of the participants with these clusters may see little to no change in their calorie intake next week. | 1              | 0.72        | 0.62     | 0               | 1         |
| Standard<br>Pattern              | Based on the most recent weeks similar to this past one, it can be seen that more than half of the participants may see little to no change in their calorie intake next week.                                 | 0.98           | 0.71        | 0.6      | 0               | 1         |
| Day-Based<br>Pattern             | Almost none of the participants in this study tend to have a low calorie intake on Mondays.  | 1              | 1           | 0.09     | 0               | 1         |
| Goal<br>Assistance               | All of the participants in this study have<br>been given advice to decrease their calo-<br>rie intake.   | 1              | 0           | 1        | 0               | 1         |

Table 9. Univariate Individual-Level Summaries for Calorie Intake Data (alphabet size = 7)

| Protoform Type                   | Summary  | Truth<br>Value | Imprecision | Covering | Appropriateness | Relevance |
|----------------------------------|--|----------------|-------------|----------|-----------------|-----------|
| Standard<br>Evaluation<br>(TW)   | In the past full week, your calorie intake has been very high.   | N/A            | 0.86        | 1        | 0.875           | 0.93      |
| Standard<br>Evaluation<br>(sTW)  | On some of the days in the past week, your calorie intake has been low.  | 0.93           | 1           | 0.29     | 0.11            | 1         |
| Standard<br>Evaluation<br>+ Goal | On most of the days in the past week, you did not reach your goal to keep your calorie intake low.   | 1              | 0.65        | 0.86     | 0.11            | 1         |
| Comparison                       | Your calorie intake was higher than it was the week before.  | N/A            | 0.68        | 1        | 0               | 1         |
| Comparison + Goal                | You did not do as well overall with keeping your calorie intake low than you did the week before.  | N/A            | N/A         | 1        | 0               | 1         |
| Standard<br>Trend                | Half of the time, your calorie intake increases from one day to the next.  | 0.71           | 0.71        | 0.84     | 0               | 1         |
| If-Then<br>Pattern               | There is 100% confidence that, when your calorie intake follows the pattern of being very low, your calorie intake tends to be low the next day.                                   | N/A            | N/A         | 0.53     | 0.24            | 0.28      |
| Day If-Then<br>Pattern           | There is 100% confidence that, when your calorie intake follows the pattern of being extremely high on a Saturday, your calorie intake tends to be extremely high the next Sunday. | N/A            | 0.76        | 0.24     |                 |           |
| Day-Based<br>Pattern             | Your calorie intake tends to be low on Mondays.  | 0.7            | 0.88        | 0.24     | 0.06            | 1         |
| Goal<br>Assistance               | In order to better to follow the 2000-calorie diet, you should decrease your calorie intake.   | N/A            | N/A         | N/A      | N/A             | N/A       |

Table 10. Univariate Group-Level Summaries for Calorie Intake Data (alphabet size = 7)

| Protoform Type                   | Summary   | Truth<br>Value | Imprecision | Covering | Appropriateness | Relevance |
|----------------------------------|---|----------------|-------------|----------|-----------------|-----------|
| Standard<br>Evaluation<br>(TW)   | Some of the participants in this study had a moderate calorie intake in the past full week.   | 0.79           | 0.89        | 0.26     | 0               | 1         |
| Standard<br>Evaluation<br>(sTW)  | Almost none of the participants in this study had a low calorie intake on more than half of the days in the past week.  | 1              | 1           | 0.15     | 0               | 0.02      |
| Standard<br>Evaluation<br>+ Goal | Some of the participants in this study reached their goal to keep their calorie intake low on all of the days in the past week.   | 0.84           | 0.87        | 0.42     | 0               | 1         |
| Comparison                       | Half of the participants in this study had a lower calorie intake than they did the week before.  | 0.58           | 0.68        | 0.46     | 0               | 1         |
| Comparison +<br>Goal             | Half of the participants in this study did<br>better with keeping their calorie intake<br>low than they did the week before.  | 0.58           | 0.68        | 0.46     | 0               | 1         |
| Standard<br>Trend                | More than half of the participants in this study increase their calorie intake from one day to the next half of the time.   | 0.91           | 1           | 0.59     | 0               | 1         |
| Cluster-Based<br>Pattern         | After looking at clusters containing weeks similar to this past one, it can be seen that some of the participants with these clusters may see a drop in their calorie intake next week. | 1              | 0.67        | 0.31     | 0               | 1         |
| Standard<br>Pattern              | Based on the most recent weeks similar to this past one, it can be seen that some of the participants may see little to no change in their calorie intake next week.                    | 1              | 0.67        | 0.35     | 0               | 1         |
| Day-Based<br>Pattern             | Almost none of the participants in this study tend to have a moderate calorie intake on Mondays.  | 1              | 1           | 0.01     | 0               | 0         |
| Goal<br>Assistance               | All of the participants in this study have been given advice to decrease their calorie intake.  | 1              | 0           | 1        | 0               | 1         |