

**DETERMINATION OF ABERRANT EXAMINEE'S OF 2018 TO 2020 MAY/JUNE
BIOLOGY OBJECTIVE QUESTIONS OF
NATIONAL BUSINESS AND TECHNICAL CERTIFICATE EXAMINATION**

Elizabeth Nnebuogo OHIOZUA

DECEMBER, 2023

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UNIVERSITY OF BENIN, BENIN CITY, NIGERIA.**

DECEMBER, 2023

CERTIFICATION

We, the undersigned, certify that this research work was carried out by Elizabeth Nnebuogo OHIOZUA in the Department of Educational Evaluation and Counselling Psychology, Faculty of Education, University of Benin, Benin City, Edo State, Nigeria.

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DEDICATION

It is with over flowing joy that the researcher dedicates this work to GOD Almighty and our Mother Mary.

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ABSTRACT

The study investigated the determination of aberrant examinees of 2018, 2019 and 2020 May/June Biology multiple choice test questions of the National Business and Technical Certificate Examination (NABTCE) in Nigeria. Aberrant examinees are examinees who fall into the category of giving responses that are incongruence with their ability level. When there is a mis match between the observed response pattern of an examinee to his expected response pattern, the examinee is said to have responded aberrant. Specifically the study investigated the level of aberrant examinees in the 2018, 2019 and 2020 NABTCE Biology multiple choice test, the internal consistency reliabilities before and after screening the data of aberrant examinees and the differences between the aberrant and the non aberrant examinees for each year. To achieve the objectives of this study, nine research questions were raised, while three hypotheses were tested at 0.05 level of significance.

This research adopted the survey research design of the expost facto. The population for the study was 88,768 Biology students responses which consisted of 28121, 29254 and 31411 for 2018, 2019 and 2020 students' scored responses respectively. The sample size for the study was 20263. This comprised of 7086, 6447 and 6730 examinees' responses for the 2018, 20019 and 2020 NABTCE Biology. A multistage sampling technique was adopted for the study, in which a stratified sampling technique, simple random sampling technique and a cluster sampling was applied for effective selection. The instrument used was the NABTCE May/June Biology multiple choice test questions for 2018, 2019 and 2020 made up of fifty items and four options each. The instruments were assumed to be valid and reliable as it was a test constructed by a public examination body. Principal Component Analysis (PCA) of factor analysis was used to determine the unidimensionality of the instruments. The Perfit non parametric Item Response

Theory (IRT) statistic was used to determine aberrant examinees. Examinees whose HT coefficients were less than or equal to .245, .152 and .311 were flagged as aberrant for the 2018, 2019 and 2020 respectively. Sample with percentages of aberrancy of $\leq 5\%$ for low level, moderate level 6% - 15% and high level 16% - 25%. The research questions one to three were answered using frequency counts and percentages, research questions four to six were answered using Cronbach Alpha statistics while hypotheses one to three were tested using Chi-Square test of goodness of fit.

The findings of this study revealed that the levels of the aberrant examinees in the 2018 and 2019 NABTCE Biology multiple choice test examination were moderate, while that of 2020 was low. It was also revealed that there was a slight insignificant improvement in the internal consistency reliabilities of the NABTCE Biology for 2018, 2019 and 2020 multiple choice test after screening the data of aberrant examinees. There was also a significant difference between the aberrant examinees and the non aberrant examinees for the NABTCE Biology for 2018, 2019 and 2020 multiple choice test. Based on these findings, the researcher recommended that students or examinees should be exposed to the implication of responding aberrantly to items, as this can lead to misclassification of abilities, which may further cause a change in career.

CHAPTER ONE

INTRODUCTION

Background to the Study

Examination is a tool or instrument designed by an examining body, faculty, department or school to gather information about students' progress or performances as related to the content taught. It is an instrument administered at intervals of termly, semesterly, at the end of a session or at any speculated time designed by the institution. The candidates required to take an examination are eligible examinees. This selection of these candidates are based on some criteria set up by the institution (internal), or a standardized examining body (external or public). In education, public examination refers to an examination that is organized and administered by public examination board, based on approved curriculum. These examinations are organized at all levels consistent with the National Policies and Goals, and in line with emerging international trends. An examinee is a candidate who is exposed to testing or exposed to an examination. They can be otherwise called testees or examinees. The responses supplied by these examinees are used to evaluate the level of presence or absence of the measured traits or constructs.

The evaluation of human behavior is an essential part in research. It deals with measuring the responses from testing precisely, clearly and correctly depending on some assumptions. This involves expressing the observed data mathematically by using the appropriate statistics. The aim of measuring is to make an evaluation. Evaluation leads to decision making about the examinees depending on the results from the assessment. The correctness and appropriateness of the decision depends on the appropriateness of measurement tool, the measurement results and the evaluation process. In line with this, there is the need to use standard measurement tools in assessing students' learning outcomes.

The measuring instrument used in psychology and education are tests, rating scales, checklists, questionnaire, observation, inventories among others. A test must be reliable, valid, objective, comprehensive, readable and standard for it to be good enough to get appropriate responses from examinees. These qualities of reliability and validity are the intrinsic components of a test which is precisely termed the psychometric properties of a test. These properties are the typical characteristics of the test that identify and define the quality of the test. Psychometric properties reveal information concerning a test adequacy, relevance and usefulness. It is concerned about the goodness of the test to eliciting appropriate responses from the examinees. According to Stephen (2021), psychometric test are assessments of people to measure psychological attributes such as personality or intelligence. It is objectively used to measure examinees personality traits, behavioral style, aptitude, intelligence and abilities. A good test must have three fundamental properties of reliability, validity and norming. However there are two broad types of psychometric properties that a test needs to possess in order to be considered a good measure of a particular construct, they are reliability and validity.

Reliability of a test is the extent to which test scores are accurate and consistent, without any or very minimal measurement error. Reliability is an essential component of a perfect psychological test. It is the extent to which the scores gotten from a test, or its parallel form are consistent over time. According to Drost 2011 in Heale and Twycross (2015), reliability is the extent to which measurements are repeatable when different people perform the measurement on different occasion, and under different condition, supposedly with alternative instruments which measure the construct or skill. A test such as this has to produce similar results under invariable conditions. It is the invariability of outcomes of the measure that determines the reliability of the test. A test that produces inconsistent and unreliable results every time will not be considered

reliable because, reliability of a test scores depends on the extent to which scores are consistent across multiple raters grading the examinee's responses. That is, a test is reliable as long as it produces similar results overtime for repeated administration or similar circumstances. If a test aims at measuring a trait (introversion) then each time an examinee undergoes the test, the test is expected to produce consistent results. In like manner, when a test is measuring a specific scientific skills inherent in an examinee, it is considered that such tests should produce similar results for each examinee, in as much as the purpose of the test remains the same.

A reliable scale is one that makes measurements without an error. Although it is impossible to make such measurements without an error because of the factors that necessitate the data collecting process and the data analysis process. However, an insignificant error is of high necessity to increasing the reliability of the measurement. To attain this, it is required that the sources of these errors are determined and then controlled for. The sources of these errors might be from the measuring tool (random) or a source other than the measurement tool (non random). Even though reliability is important for a study, it is not sufficient unless combined with validity. To this effect, it can be stated that, all valid test are reliable but, not all reliable test are valid. In line with this, some researchers like Oyeniyi, et al (2016), Wayne (2014) and others have identified that though a reliable data does not necessary mean a valid data, but a valid data means a reliable data. This explains the necessity of validity added to reliability rather than reliability alone. This is because a valid test explains how good a test is for a particular purpose whereas reliability ensures trustworthiness of test scores. Therefore, one cannot draw a reliable conclusions about a test, unless he is sure that the test is valid. Hence it is important that for a test to be reliable, it is also needs to be valid (Wilson, 2010).

Validity can be referred to a test potential to evaluate what it claims to measure. It is the test capacity to measure what it claims to measure. Validity is a crucial part of a reliable test that indicates whether the test measures what it is expected to measure in the examinee. It is important to say that high validity of a test guarantees that, the items remain firmly connected with the test's intended core interest. Validity depends substantially on the sample of participants such as age, gender, language and culture. This helps to ascertain that the results from the test apply to the wide range of populations, for which the test is meant. Validity of a test is the ability of a test to measure what is expected of the test to measure and nothing else. The validity of the test therefore depends on the purpose for which the test was made. This implies that a test which is valid for assessing achievement in SSII Biology may not be valid in assessing achievement in SSIII Biology. To ascertain that an instrument is valid means that, such instrument is appropriate, meaningful, correct and useful to the inferences of the researcher, carrying out the study.

Even when the validity and reliability of a data set have been proven good, such data set may still contain some mis fitting responses supplied by examinees, who are termed aberrant examinees. These responses may not match with the examinee's ability or construct level. An aberrant examinee is identified by his responses. A response straying away from the expected is said to be aberrant, mis fitting or unexpected. Also when the expected score of an examinee do not match with the observed score, it is referred to as aberrant or misfit responses. When other factors other than the latent trait or psychological construct being measured affect an examinee's response pattern, the examinee's response behavior becomes aberrant or unexpected. Responses of such kind would result in test scores not adequately reflecting the level of the latent trait of the examinee. Responses that are aberrant, can return a strongly biased estimation of a true

underlying ability. These aberrant responses are kind of strange and different from the expected. There are various behaviors that are indicative as aberrant responses. Meijer (2001) cited by Jia et al (2019) proposed some examinees behaviors that are related to aberrant respondents such as, slipping or carelessness, guessing, cheating, alignment error (when items on a test do not align with the curriculum), and deficiency of sub-abilities (such as, ability in critical thinking and problem solving collaboration across networks and leading by influence), when difficult items are answered correctly and easy items incorrectly. When an examinee choose the right answer by randomly guessing on a multiple choice item, the test score might be inflated, leading to a higher ability than is expected of the respondent. Alternatively when a knowledgeable examinee choses a wrong answer otherwise to be answered correctly by him, his test scores will be reduced leading to a lower ability than is expected of the respondent.

Aberrant responses occur when the observed response patterns are not in agreement with the expected ones. It is a kind of response that deviates from normal. These are responses that identify such examinees as aberrant. This is because they do not fit the underlying model or they give strange responses compared to the rest of the sample group. Aberrances can be identified as bad test items, ambiguous instructions, specially accommodated examinees, speed of a test, answer copying and test cheating. It is essential to identify individuals who do not fit the underlying model or give strange responses compared to the rest of the sample group, as their proper level of the latent trait may not be accurately estimated. In general aberrant respondents is statistically defined in their responses in terms of the maximum likelihood function. This is because the value of the function decreases due to the occurrence of an unlikely response given to the model. It can be seen in cases of a pattern of correct guessing on a set of difficult items, by a low ability examinee adversely affecting the likelihood function, which in turn results in an

inaccurate estimation of the final ability of the examinee and vice versa. Also in a personality questionnaire where the examinee is expected to respond based on the presence or absence of a construct, and the examinee is asked same question in several ways. If his responses varies significantly from the other responses, this could be considered an aberrant responses.

Aberrant responses may come in as a result of instrumental errors, examinee's disposition or environmental distraction. A respondent's level of motivation, poor understanding of the instructions, in attentive reading of the items, inability to respond sincerely and ignoring some response categories may cause him to provide response patterns that are inconsistent with the underlying model of the trait by Makalesi (2021). This can lead to biased examination results and erroneous decisions about individuals. Significantly, inaccurate estimation negatively affects individuals and organizations, and may lead to erroneous conclusion about test validity Schmitt et al (2012) as in Makalesi (2021). The type of aberrant response produced by an examinee is a function of the item or the examinee. When difficult item are answered incorrectly by a low ability examinee, such is a function of the item but, when easy items are answered incorrectly by a high ability examinee then, such is a function of the examinee.

Examinees are considered careless when they do not put in enough forth that is required to respond to a survey thoughtfully and truthfully. It is not out of place for high ability examinees to miss out easy items, even though it may be rare. In practice just as some examinees sometimes make lucky guesses, so also some other examinees fail easy items. This act may be seen in computerized adaptive testing or in multiple choice test. The pseudo-guessing parameter is the probability of getting the item correctly by guessing alone. To such examinees, their responses do not reflect their true latent standing on the measured construct or ability. The value of the guessing parameter does not vary as a function of the trait or ability level. That is, examinees

with high and low ability level have the same probability of responding correctly by guessing. The four parameter logistic model assumes that even high ability examinees can make mistake. Magis (2013) indicated that 4PLM allows more robust estimation of ability due to weighting the log likelihood function. The trait level of aberrant respondents belonging to the class of carelessness are down-weighted and have less impact on the estimation of ability. The lower the probability of the response determined by the IRT model parameters, the more aberrant the response.

These aberrant responses though hidden are part of the responses been supplied by the examinees. Although these parameters cannot be determined by subjecting test responses to the statistics of validity and reliability, because such statistics are not capable of identifying examinees whose responses are aberrant. In most study conducted, such responses are not been sorted out from the entire responses, before statistical analysis are done. This therefore implies that for every large or small data set not screened, may contain some percentages of aberrant responses. These aberrant responses are all together included in the data analysis process in significant or insignificant degrees. To ensure the truthfulness of test scores, it becomes necessary to identify statistical procedures for detecting aberrances. These statistics operate by detecting responses that are a mis match or are aberrant.

Person fit statistics is concerned with detecting whether an examinee's item score pattern is unusual or unexpected, when compared to the item score patterns in a group of test takers (group-based analysis) or alternatively when compared with a prespecified IRT model (model-based analysis). Existing person fit statistics includes parametric and non parametric statistics in IRT. Parametric IRT person fit statistics assess the fit of a response pattern relative to a given IRT model such as the 3 PLM. They are used to estimate item and ability parameters for

calculating person fit indices and then, classify respondents as fitting (non aberrant) or mis fitting (aberrant) respondents. This statistics evaluate the misfit of an observed response pattern with an IRT model by calculating the response probabilities using respondents' ability and item parameters (Mousavi & Cui 2020). In the non parametric IRT statistics, the probability of a correct item is defined as an ordinal function of the latent ability. Here the examinee's ability coefficient is compared with a cutoff value generated by applying algorithm to determine if he is an aberrant or non aberrant examinee.

The National Business and Technical Examination Board (NABTEB) is a well recognized examination Body, that conducts examinations annually in Senior Secondary Schools in all States in the Federation. At the end of the examinations, the body issues certificates based on the level of performances of each students. Due to its parallel form of test with that of the West African Examinations Council (WAEC) and the National Examinations Council (NECO), its certificate can be used for same purpose with that of WAEC or NECO, such as placement purpose, admission into higher institution and job employment. As such this study will be of great importance in determining if there is a substantial variation between the non aberrant examinees and the aberrant examinees in the candidates of the NABTCE 2018, 2019 and 2020 Biology multiple choice test examination.

Biology is among the several subjects which NABTEB conducts examinations on. It is one of the science subjects taught in senior secondary schools in all Nigeria secondary schools, which attracts patronage of both science and non science students. For this reason, Biology has a very high enrolment of students in the external examination (WACE, 2015). Biology test is either constructed as objective, essay and practical or a combination of any. It's a very unique subject that combines other subjects such as mathematics, chemistry and physics to itself. Based

on its importance, some researchers are advancing into the field of biology to ensure improvement in biology subjects by students, and a better methods of teaching, learning and assessment of students' performances.

Person fit statistics is one that estimates how fit a respondent is, inline with the responses provided by the examinees to the test items. There are two major broad techniques of person fit statistics in IRT, the parametric person fit and the non parametric person fit statistics. The perfit package is a non parametric person fit statistics developed by Sijtsma in 1986 and, it is effective in detecting examinees that are aberrant respondents. It adopts a boost stramp resampling procedure in determining cutoff values by which an examinee is termed aberrant or non aberrant. Therefore this study is carried out to determine the level of aberrant examinees in the NABTCE May/June Biology objective test questions of 2018, 2019 and 2020 in some selected states in the six geopolitical zones in Nigeria.

Statement of the Problem

Data assessment is one of the most widely used information in psychological research. This is because it helps to better understand a person's strengths and weakness, identify potential problems with cognitions, emotional reactivity, and make recommendations for treatment or remediation. Test are vital tools in educational measurement and evaluation, which are used in gathering valuable data in which educational decisions are based. The results gotten from a test measurement are used in decision making. These decisions should be carefully made based on authentic and accurate data gotten from the responses supplied to the test items. It is expected that the responses given by an examinee to an item should be dependent on the level of acquired knowledge, which is derived from his exposure to educational experience within or outside the classroom. These responses are determinants of the examinees' academic achievement as well as

the examinees' innate ability, which defines the pattern of responses revealed in the test. Obviously, unauthentic or inaccurate data will lead to wrong decisions, which will in turn adversely affect the examinee or the purpose for which the test was designed. These inaccurate data is known as aberrant responses.

Aberrant responses are invalid responses provided by some examinees to an item or a scale. These responses have negative impact on item parameter estimation, examinee's evaluation and other statistical analysis. When data are collected through questionnaires or test, and some respondents produce invalid test scores as a result of lack of motivation, not understanding particular items, or faking amongst others, these types of responses will often result in aberrant response patterns. If this continues, unattended to, the effects of aberrant data can have very undesirable consequences in the interpretation and replication of test results.

Evidences in literature have shown that it is common for some examinees not to pay enough attention, and hence do not give enough effort to provide thoughtful and accurate responses, thus producing invalid response vectors with the potential to alter the properties of the entire data set, (Maniaci & Kogge, 2014). The consequences of aberrant responses arising from a small magnitude or low proportion (as five percent of aberrant responses) could produce substantial alterations in the correlation between variables, statistical power, data dimensionality and the size of effects.

Aberrant responses are not completely unexpected in practice particularly when an assessment instrument is administered to a large sample of examinees. However a high magnitude of occurrence is an issue of concern, as it is capable of negatively limiting data quality and thereby affecting the conclusion derived from such data. Given the importance of the National Business and Technical Certificate Examination as large scale examination, used for

certification purpose, there is need to empirically investigate for aberrant respondents before its negative impact becomes consequential. The study therefore seeks to determine the level of aberrant respondents for 2018, 2019 and 2020 May/June NABTCE biology objective questions.

Research Questions

To guide this study, nine research questions were raised for the study.

1. What is the level of the aberrant examinees in the NABTCE 2018 Biology multiple choice test examination?
2. What is the level of the aberrant examinees in the NABTCE 2019 Biology multiple choice test examination?
3. What is the level of the aberrant examinees in the NABTCE 2020 Biology multiple choice test examination?
4. What is the internal consistency reliability of the NABTCE 2018 Biology multiple choice test items, before and after screening the data of aberrant examinees?
5. What is the internal consistency reliability of the NABTCE 2019 Biology multiple choice test items, before and after screening the data of aberrant examinees?
6. What is the internal consistency reliability of the NABTCE 2020 Biology multiple choice test items, before and after screening the data of aberrant examinees?
7. Is there a difference between the non aberrant examinees and the aberrant examinees in the NABTCE 2018 Biology multiple choice test examination?
8. Is there a difference between the non aberrant examinees and the aberrant examinees in the NABTCE 2019 Biology multiple choice test examination?
9. Is there a difference between the non aberrant examinees and the aberrant examinees in the NABTCE 2020 Biology multiple choice test examination?

Hypotheses

Research questions seven, eight and nine were hypothesized for the study.

1. There is no significant difference between the non aberrant examinees and the aberrant examinees in the candidates of the NABTCE 2018 Biology multiple choice test examination.
2. There is no significant difference between the non aberrant examinees and the aberrant examinees in the candidates of the NABTCE 2019 Biology multiple choice test examination.
3. There is no significant difference between the non aberrant examinees and the aberrant examinees in the candidates of the NABTCE 2020 Biology multiple choice test examination.

Purpose of the Study

The main purpose of this study was to determine the level of aberrant examinees in 2018, 2019 and 2020 NABTCE Biology objective test items. Specifically, this study was to find out the:

- level of the aberrant examinees in the candidates of the NABTCE 2018, 2019 and 2020 Biology multiple choice test examination.
- internal consistency reliability of the NABTCE 2018, 2019 and 2020 Biology multiple choice test items, before and after screening the data of aberrant respondents.
- difference between the non aberrant examinees and the aberrant examinees in the candidates of the NABTCE 2018, 2019 and 2020 Biology multiple choice test examination.

Significance of the Study

The findings of the study would be of benefit to test developers, students, teachers, parents, examination bodies, future researchers, policy makers, counselors and health specialists. Test developers or psychometricians will find this study useful in the area of constructing test survey items with high psychometric properties, to advert psychometric implications. This is particularly true when surveys are administered for scale development purposes, as items development is based largely on items inter correlations. It will expose students on the negative effects of responding to item(s) aberrantly. For example, computerized adaptive test is programmed to tailor items administration in relation to each examinee's abilities, by employing IRT, to estimate an examinee's ability. The selection of each item to be administered is based on the examinee's response pattern. Hence, an examinee's aberrant responses can cause ability estimation errors and therefore inappropriate items might be selected. This may eventually lead the examinee to different line of profession.

It will assist teachers to monitor students' learning and assessment progress, by way of guiding them against behaviours that could lead to aberrant responses. Examination bodies such as WAEC, NECO, NABTEB and JAMB will benefit from this study to be well informed that surveys usually contains varying percentages of aberrances. This may result in the likelihood function not to have a proper maximum, resulting in an inadmissible estimate for the examinee's proficiency level. Also that the item response model employed in CAT may not adequately model the examinee's performance because of aberrant responses supplied by the examinee due to time pressure, and hence can lead to misclassification of ability. It will be of benefit to future researchers who want to do research on studies related to aberrant responses. As researchers, it is

essential to be concerned about aberrant responses in such that researchers should determine a clean data set for better results.

Policy makers, will also benefit from this study because the findings of this study can be used to reconstruct the educational system and policies for better human (student, teacher and society) capabilities in various sectors of the country. This is because all aspect of the country is involved in research for better productivity. Counsellor will also find this study quite useful, in the area of wanting to detect the absence or presence of a construct, and a better therapeutic measure for the counsellee. Misfitting responses from a counsellee could renders the results of such construct doubtful. This may have an authomatically negative effects on the decision about the counselee made by the counsellor using the test. Generally, all the benefactors will find the study quite useful as it will help to control decision making.

Scope and Delimitation of the Study

The scope of the study is to determine of the level of aberrant examinees of 2018, 2019 and 2020 May/June Biology multiple choice test questions of the National Business and Technical Certificate Examination in Nigeria. The study is delimited to the aberrant examinees among the candidates that sat for the May/June 2018, 2019 and 2020, NABTCE multiple choice objective test items in Biology in some selected states in the six geopolitical zones in Nigeria. The study will majorly focus on aberrant examinees who responded by lucky guesses and carelessness.

Definition of Terms

The following terms are operationally defined by the researcher for easy understanding of the work.

Aberrant Responses are responses to an item(s) given by an examinee which deviates from the expected response which the examinee is supposed to supply to that item.

Aberrant Respondents are examinees or respondents whose response to an item(s) is not in agreement with the examinee's ability level.

Non Aberrant Respondents are examinees or respondents whose response to an item(s) is in agreement with the examinee's ability level.

Careless parameter: this parameter is identified as one which exposes the responses of knowledgeable examinees that keyed in the wrong answer as expected to be right.

Examinees or Respondents are individuals or candidates who are exposed to testing.

IRT is a measurement theory that estimates item and person ability using some specific IRT computer soft wares.

Item difficulty is the difficulty level of an item.

Item discrimination determines how best an item(s) identify learners at different levels of θ .

Local independence is an assumption of IRT that assumes that there should be no relationship between the key of an item, and another item in the scale

Pseudo chance is the privilege of a low examinee to correctly key in the right answer.

Psychometric properties; these are the characteristics of a test that identify and describe the attributes of the test.

Reliability; this is the consistency of two or more measures gotten from same or a parallel test after series of administrations.

Theta (θ) is a measure of the inherent ability needed by a respondent to attend to an item.

Validity: is the extent to which a test measures the particular construct that it was designed to measure.

Unidimensionality is an assumption of IRT that assumes that only one dominant trait should be measured by a scale/test.

CHAPTER TWO

THE REVIEW OF RELATED LITERATURE

In this chapter, the review of literature was anchored on the relevant studies to this work, under the following subheadings;

- Theoretical framework
- Concepts of Aberrant Responses by Aberrant Respondents
- Assumptions and Models of IRT
- Item Parameter and Parameter Estimation
- Person Fit Statistics
- Concepts of Validity and Reliability
- Biology as a subject
- History and functions of National Business and Technical Examinations Board (NABTEB)
- Summary of Literature Reviewed

Theoretical Framework of the Study

The theoretical framework of this work has its bearing on Item Response Theory (IRT). It was initiated by the propounder, Louis Thurnstone in 1925 to give better explanations to examinees responses to items in educational and psychological test, which was one of the limitations of Classical Test Theory (CTT). The contributions by Louis Thurstone (1925) built on Binet's intelligence test developed to separate students in Paris schools that needed special education from regular underachievers (Binet and Simon, 1905). The most significant contribution of Binet's test was his idea to scale the items before using them in a test. He was hailed for this as been the first to be a fully standardized test in the history of educational and

psychological measurement. Natural intelligence scale is not in existence so, Binet's simply chose the chronological ages as the scale on which he mapped his items and students. In the modification of this theory, Thurstone's innovation was to put Binet's items on an intelligence scale that cannot, be measured directly. He did so because he recognized that, intelligence is an example of latent variable (unmeasured hypothetical construct). This idea of Thurstone's to separate intelligence from age and define it as a latent variable with a scale defined by such response was entirely new. Lawley, Mosier and Tucker (1940) defined mathematical forms of ICC in which they discussed the idea of latent variable in relation to response functions. Lord 1952, discussed test theory which can be considered as some of the most earliest works in IRT. Lord used and explained many of the common terms in IRT such as test characteristic curves (TCCs), item characteristic curves (ICCs), and standard errors conditional on latent ability. He also discussed on the local independence and the invariance of item parameters. His 1953 article in which he mentioned modelling data, led to the Rasch model, which is IRT basics.

In 1960 Rasch's publication described and demonstrated 1PLM. Birnbaum (1968) introduced additional item parameters to account for guessing on items, Lord continued to contribute to IRT methodology with works by himself as well as co-authoring works. In 1981, Lord and Barton developed the four parameter, logistic model, which accounts for carelessness of an examinee who is knowledgeable to miss out on an easy item. Also in IRT, equating statistical bias in maximum likelihood (ML) estimation of item parameters, estimating the Rasch model, comparison of equating methods, reducing sampling error, ML and Bayesian parameter estimation in IRT and confidence level for item response curves amongst others are estimates which the software determines. Block and Aitkin (1981) developed some approaches to

parameter estimations. One of the salient features of IRT is how it relates each examinees latent trait to item parameters through his/ her responses to each item in the test.

In the 1990s the IRT was expanded as new wave of researchers promoted and expanded the technical aspects of the framework (parameter estimation, model identification and goodness of fit) and also advanced its computational aspects. Various IRT commercial softwares were created such as BIGLOG, MULTILOG, WINSTEPS, IRTPRO, MPLUS, HLM, EIRT, WINBUG, Mirt library, SAS SUPPORT, Fit amongst others. Chalmers (2012), described IRT as a set of latent variables techniques specially designed to model the interactions between subjects' ability and the item level stimuli (difficulty, discrimination and guessing). IRT framework emphasizes how responses can be thought of in probabilistic terms. These responses are considered the outcomes (dependent) variables and test items administered to students which can be manipulated are the predictors (independent) variables. This theory views the relationship between the responses of each examinee of a given ability to each item in the test (Lord (1981) cited in Amasingha & Temple, 2015). It is clearly useful for test construction, analysis and obtaining of approximate latent trait estimates in multiple domain of inquiry.

IRT is a general statistics that estimate the item and test performance of an examinee and how these performances relate to abilities measured by the items in the test. There can be only one ability, or many abilities underlying test performance, and there are several ways (model) to which relationships between underlying ability(s) and item responses can be specified. IRT models in contrast to CTT do not rely on sum or number correct scores to evaluate a person's performance nor do they assume equal contributions of the items to overall scores. Item vary in their difficulty and persons vary in their latent trait levels. This theory results in a more accurate

assessment of respondents' latent trait because respondents with the same summed scores may differ in their trait measurement.

The association between an individual's response to an item and the underlying latent variable (usually called the ability or trait) being measured by the instrument can be expressed using IRT model. Each learner's performance to a question and each question are separately analyzed. That means it estimates question-level and test –level parameters and examinee's knowledge level. It provides approximate estimates of the difficulty and discrimination of each question for examinees of different knowledge levels. It does this by estimating the correspondence between unobservable latent variables (students' knowledge and difficulty of the questions) and observable evidence of knowledge (students' response to questions), (Xie, Li, Davidson & Ko, 2019). It is a modern educational and psychological measurement that addresses the measurement of a hypothetical latent construct, such as ability or attitude.

The theory is relevant to this study since the theory has some statistics that are capable of identifying responses of examinees that do not conform or correspond to their latent ability. The theory adopts such statistics to identify examinees response patterns which do not match with the expected response patterns either in the form of lucky guesses or in the form of careless responses. Such examinees are termed aberrant examinees.

Concepts of Aberrant Responses by Aberrant Respondents

Examinees response to a multiple choice test can be classified into three categories; First, response reflecting the true ability of the examinee, whether correct or wrong. Secondly responses that are correct due to lucky guesses and Thirdly, responses that are not correct due to carelessness, anxiety, distraction amongst others. The later two types of responses are aberrant and can lead to wrong estimation of examinee's actual ability because, they do not point out the

true ability of the examinee (Liao, Ho & Yen, 2012). In IRT aberrant is defined as an observed item response pattern that deviates from the expected response pattern, based on a specific IRT model (Meijer and Sijtsma 2001 as presented by Oluwatimilehin 2021). It can therefore be defined as a response pattern that defies some expectations. It is the item response pattern that is unexpected under certain assumptions, and inconsistent with expectations defined in the context of IRT models. These responses are often strange and different from expected.

Aberrant response is a reflection of model misfit and causes a discrepancy in the examinee's observed and expected responses resulting in a violation from the model expectations. In essence, it is an examinee who do not fit the underlying model or give strange responses compared to the rest of the sample group, as the proper level of the latent trait may not be accurately estimated, (Avcu 2021). According to Lord 1980 in Swist (2013), an aberrant response is the one that provides less psychometry information for estimating ability, than would be expected by the parameters of the specified IRT model. Another commonly observed type of aberrant behavior is rapid guessing, as stated by (Wise 2017) which is defined as quickly obtaining an answer without carefully processing the meaning of the item . It occurs either due to the test speedness or lack of motivation (Wang, Xu, & Shang 2018). Aberrance in general, is statistically defined in the form of the maximum likelihood function, as the value of the function will decrease as a result of the occurrence of an unlikely response, given by the examinees which was spotted by the model. An example is a pattern of correct guessing on a set of difficult items by a low ability examinee. This will adversely affect the 'likelihood function' which in turn will results in an inaccurate estimation of the final ability of the examinee.

These aberrant responses are identifiers to the respondents, as aberrant. The responses can be detected in the design of the test or in the irregular behavior of the examinee(s). However

examining the test score or response patterns of examinees that deviates, can be done through person-fit analysis in Item Response Theory. Item response theory (IRT) is a statistical method which is based on the responses supplied by examinees to interpret his or her ability level in line with the item characteristics. The classical estimate of ability in IRT is highly sensitive to response disturbances. These disturbances termed aberrant, may jeopardize measurement accuracy among respondents and invalidate the use of IRT. As mentioned by Jia et al (2019), in IRT framework, aberrant responses can be addressed through (i) methods based on response times (RTs), such as classical and Bayesian checks in computerized adaptive testing (CAT) which is restricted to computer environment. This is because it has been observed by some researchers that some high ability examinees could fall out of track as a result of time pressure. This apparently makes the responder an aberrant respondent in relation to the test. This form of testing is adapted to adjust to each examinee's ability level in respect to how they respond to each item. For a high ability examinee who answers an easy item wrongly in CAT, automatically an easier item will pop up for such examinee to respond to. This indicates that, such examinee's ability was not high enough to respond to the former item, reason why it was failed. Hence, such examinee has sent a wrong information to the computer which randomly selects an easier items for him to answer. (ii) methods without response times, such as person fit analysis, which is used to estimate examinees who are aberrant in their responses. Person fit analysis is a post hoc measures. A post hoc measure is a statistical analysis, specified after a study has been concluded and the data collected. These data collected in the form of examinees' responses are then imputed into the analysis of person fit. Person fit statistics (PFS) are used to identify response patterns that are incongruence based on the model. (iii) weight robust estimation method which reduce the influence of aberrant responses on ability estimation, (Magis, 2014). This statistics

however reduces the bias in estimating by weighing. Its robustness can be seen from its capacity to remain unaffected by small, but deliberate variations but, still provides an indication for its reliability during normal usage. Such statistics are preferred when the data set contains a lot of abnormality.

Item response theory model employs a Guttman scaling pattern, whereby examinees are expected to be successful in items for which their ability is higher and unsuccessful in items that exceed their ability capacity. That is, an examinee should have a larger chance to answer an easy item correctly than a difficult item. In an illustration using a hypothetical 10 scale, an examinee of an average ability is expected to be successful in the first three items, have a 50% chance of success in the next four items and is expected to fail in the last three items (such response pattern is expected to be 1110101000). This is expected in a scale of items arranged from simple to complex items. An examinee with average ability who fails any of the first 3 items that are within his ability level, may be indicative of carelessly responding (aberrant respondent(s)). In like manner, if such a student is successful in any of the last 3 items, for which his ability level does not match, such an examinee will be indicative as an aberrant respondent. These respondents are detected in the form of cheating or lucky guess or carelessly responding

A simple example of causes of aberrancy could be illness, carelessness, poor preparation, running out of time, differential test preparation, (been well prepared for some contents and not well prepared for others), inappropriateness of the test for the examinee (this is where the level of the ability and the type of knowledge and skills that the test is intended to measure does not suit the level of the examinee). It is possible to predict within a certain degree of certainty, the response pattern of an examinee, when a test is appropriate for a test taker with a certain level

of ability. This is based on the underpinning measurement model used, the response patterns and scores from examinees, with similar level of ability in the sample or population.

Item response or score pattern from individual examinees provide added information to the total scores in a test. Meijer and Tendiero (2014) opined that, there are generally two approaches that can be used to determine the expected response pattern: the expected (predicted) response pattern is produced using a theoretical or mathematical model (such as an IRT model), that characterizes the interaction between the person and the items in the test or the expected response pattern which is based on the sample. Examinees response pattern which are associated with the first approach are termed parametric IRT person fit indices, while those examinees whose response patterns are associated with the second approach are termed non-parametric IRT person fit indices. The basic ideas employed in this approach in deriving person fit statistics in which case the item response pattern from an examinee is expected to reflect the difficulty distribution of the items. When some examinees have been considered as aberrant in their responses within a given group under study, the effects of their responses may have negative impact on the item to item correlation or item to test correlation. Jia et al (2019) in their study, showed different levels of aberrancy such as low $\leq 5\%$, moderate 6% - 15% and high 16% - 25%. In a study carried out by Crede (2010) as cited by Schroeders et al (2022), convincingly showed that the base rate for aberrant responding as low as five percent can affect correlations in a similar manner. In support to this view Arias et al (2020), Crede (2010), Woods (2006) and Schmitt and Stults (1985) in Welz and Alfons (2023) stressed that even a small proportion of aberrant respondents of 5-10% can jeopardize the validity of survey measured through a variety of psychometric processes. Example of such can lead to lower instrument reliability, it could

produce spurious variability, deteriorate the fit of the statistical models and cause type I or type II errors in hypothesis testing.

Causes of Aberrant Responses

There are different reasons for which examinees produces responses that are aberrant. Edwards (2019) listed multiple causes which include; characteristics of respondents, the instrument and the method of data collection. The examinees' personality plays a role in determining what kind of response patterns they use. Examinees with high conscientiousness (perfect personality) and agreeableness (maintain positive relationships) have been linked to a higher response validity as stated by Dunn et al (2018). A high conscientious examinee should thus be likely to complete a test in a more careful, effortful and thoughtful way to provide useful information when compared to less conscientious examinees.

The examinees' ability is another cause of aberrant response, which interact with the respective test at hand. This is when the examinee needs to process a sufficient verbal comprehension, vocabulary and general language skill to produce valid response Curran, (2016). Also a test might require an examinee to recall experiences and events in the past which may produce inter-individual differences because of the differences in memory capacity between examinees. It is essential for examinees to fulfill the demands of communicational skills and information recall, which might lead to an examinee been an aberrant respondent if the examinee lacks a certain ability to recall. The motivation of an examinee to participate also plays a crucial role in the response validity, even though naturally, examinees invest time and effort into deliberately answering survey items. Some may rationally intend to minimize the time and effort they invest in completing the survey if the motivation is not there, Dunn et al (2018).

Another facilitating factor in the response validity is the characteristics of the instrument itself. The construction and organization of test items within a survey plays a vital role in determining if the respondent will be an aberrant one or not. It specifically concerns the clarity and simplicity of the wordings, conversational norms and open versus closed response formats that items invoke. Further effects of the item order and contextual factors (uniformly positive and or negative items) have been recorded to affect the kind of responses examinees provide. The effects contributed by survey length too have been studied to contribute to the causes of aberrant respondents. Long surveys have been linked to fatigue and a potential loss of interest (Edward, 2019). This may either lead to high dropout rate or a reduced response validity. Lastly the format and methods used for data collection also have an impact on examinees' response pattern. Especially online studies have been of some concern to researchers (Fleischer et al 2015). The concerns regarding the possibility of distractions and the lack of control over environmental circumstances have also been recorded by (Meade & Craig, 2012).

The Pseudo-Guessing (C Parameter) as an Aberrant form of Response by Aberrant Respondents in the Three Parameter Logistic Model

The probability of giving a certain response to an item in IRT models depend on one or more latent variables, as well as the parameters related to the items. One of the main purpose of IRT analysis is to study the properties of each items and to measure the latent variables of each examinee. Several literatures have proposed different kinds of models in line with the expected responses that can be given to an item. For example in binary items, such as yes or no, true/false, correct or incorrect, agree or disagree, are the expected responses to be supplied by the examinees. Guessing which is a part of a testing situation, is a process of trying to key in the correct option by students who have partial knowledge about the item. Guessing means giving an

answer or making a judgement about something without being completely sure of all the facts. It is a standard test-taking behavior exhibited by examinees taking a multiple choice test regardless of age. This strategy of correct guessing, gives the examinee an opportunity to have an item correct even when he has insufficient knowledge about the subject matter. Guessing in an objective test is an example of the necessity to modeling such response patterns for examinee of low ability levels. The 3PLM estimates the likelihood of an examinee of ability, to respond correctly to an item with a difficulty index, discriminating index and a guessing index. The model assumes that these three parameters of difficulty, discrimination and guessing are very vital to estimate a reliable and accurate relationship, between the trait level of the examinee and the probability of a correct response to an item.

Guessing in educational testing is believed to occur when examinees absolutely do not know the correct answer, but tries to arrive at the right answer, (San Martin et al 2006 in Orcan, 2021). There are several ways in which the process for problem solving through guessing, can be conceptualize. These ways revolve round the question of: whether the guessing process (GP) comes before or after the problem-solving process (PSP)? In literature, it is presumed that the GP is based on knowledge that is insufficient to successfully complete the PSP. The examinees' proficiency will determine the degree of incompleteness of knowledge, so the GP is the interaction between the item and the examinee. Lord (1981) in Orcan (2021) pointed out that, estimates gotten from the guessing parameter were smaller than those that would have resulted, if the examinee guessed completely at random presumably because, the pattern of response which attracts incorrect options were exhibited most likely by low ability examinees. The researcher opined that there are conventionally two kinds of guesses, which are random and logical. Guesses made strictly at random are called random guessing because such guesses are

not tied on any information, while logical guesses are tied to several sources of information. He however stressed that none of which alone, or together are sufficient to lead to the right answer. If test scores are based simply on the number of questions answered correctly, then guessing would increase the chances of a higher score. Guessing is only advisable when the choices are not completely random, but based instead on partial knowledge as stated by (Talento-Miller & Gao, 2009).

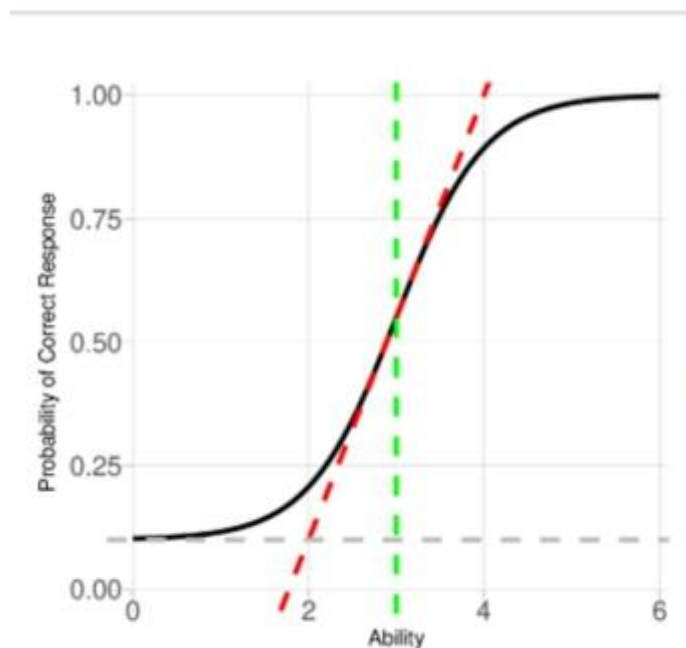


Figure 1; Curve of a Three Parameter Logistic Model

The figure above reflects a scenario where an examinee by guessing (either random or logical) was able to boost his performance and not his ability, thereby reducing the item information. The actual probability of making a correct option in a multiple choice tests, does not approach zero even for a low ability examinee. This is because in cases like this, the lower asymptote which is the guessing index, represents the probability that an examinee whose ability is extremely low may correctly answer an item with difficulty. In cases where guessing is likely

to be a factor, affecting an examinee's test responses, the 3PLM provides an appropriate solution for correctly estimating the examinee's ability (Amarnani, 2009).

Guessing is a serious problem in detecting the approximate ability of an examinee. According to Gao & Stokes as cited by Obinne (2011), there are three models in guessing. Two out of these three models are the likelihood of guessing or low effort which is related to the location of the item in the test. The first of these which is the IRT threshold guessing model (IRT-TG) may, be appropriate for a low –stake test in which the examinees are motivated at first, by curiosity or interest in the test and then abruptly abandons the effort and begin to select responses at random after a certain point. Speeded test may also be appropriate for this model. The second model which is the IRT continuous guessing model (IRT-CG), assumes a gradual change of examinees' motivation that does not necessarily results in guessing, but just low effort that results in a smaller probability of correct response. This can occur on a low-stake test under the same conditions as for the IRT-TG model or due to fatigue. Both of these patterns results in more distortion of items late in the test, especially for low difficulty ones.

The third model is the IRT difficulty –based guessing model (IRT-DG). This assumes that those involved in guessing only answer the relatively easy test items and guess on the remaining items. It differs from the other two in that the chance of guessing on an item is not related to its location (item location). Unlike the “switch –only once” strategy in the IRT-TG model, the guessers can switch multiple times between solution and guessing behaviors in the test. These three guessing models assumes that the guessers employ a certain homogeneous guessing strategy applicable to its pattern.

Examinees who guess do not have adequate knowledge or ability to provide correct answer. On the other hand, evidences of Mchrens and Lehmann (2009) in Obinne (2011), also

identified two types of guessing which are, blind guessing that occur as a result of an examinee choosing an answer at random from among the options provided and informed guessing that occurs when an examinee draws out all his knowledge and abilities to choose the answer which is most likely to be correct. The claims made by the researchers, stated that the amount of blind guessing that occurs in normal circumstances is very small when compared to informed guessing is that takes place more in test situations. Examinees who are motivated to do their best will utilize every bit of information at their best to seek out the correct answer, eliminate implausible alternatives and will hardly find themselves in situations where blind guessing is all they can do (Obinne, 2011).

The IRT 3PLM is suited in particular for fitting data that vary in difficulty and discrimination and which are likely to induce guessing in low ability examinees in a multiple choice test. The model was intended to properly estimate low ability examinees who answered items that were difficult correctly, by guessing (Swist, 2015). Guessing impacts a kind of unreliability to test scores that is different from random measurement error and this fact could result in statistical bias in analysis using number - correct scores (Chiu & Camilli, 2012). In which case, the observed test scores will deviate from the expected test score.

Mathematically, the 3PLM is stated as;

$$P_i(\theta) = c_i + (1 - c_i) \frac{e^{D_{ai}(\theta - b_i)}}{1 + e^{D_{ai}(\theta - b_i)}}$$

Where $P_i(\theta)$ = probability of endorsing an item

θ = examinee's ability

b_i = index of item difficulty with 50% chances of endorsing an item

c_i = item discrimination

D = constant, 1.7

e = exponential

Antoniou et al (2022), evaluated the psychometric properties of raven's coloured progressive matrices by estimating the presence of pseudo-guessing and pseudo-carelessness. Stratified random sampling procedures was used to select their respondents of 1127 children from ages 5 to 11. The instrument used was the coloured progressive matrices (CPM), which is a dichotomous scale. The CPM consisted of 3 forms of increasing difficulty; namely A, AB and B), with each forms consisting of 12 items for a total of 36 items. .Guessing and carelessness were assessed using the lower and upper asymptotes of the 3PL and 4PL item response theory models. Optimal model fit was judged using different log likelihood tests and information criteria. Their results indicated that guessing but not carelessness were evident in the AB and B forms of the CPM, with successful guessing being more prevalent in the AB form.

Wang, et al (2018), carried out a study on detecting aberrant behavior and item preknowledge, using mixture modelling method and residual method. Both response accuracy and response time information (cheating and rapid guessing), to differentiate aberrant behavior from normal behavior. Simulation study was designed to evaluate the Markov chain Monte Carlo (MCMC) whether the indicator variable can correctly distinguish aberrant behavior from normal behavior. The sample for the study was 1000 respondents who responded to the MCMC comprising of 30 items. Results showed that the mixture model approach consistently outperforms the residual method in terms of correct detection rate of aberrant behavior from normal behavior, and a false positive error rate.

In identifying guessing in English Language study by Coniam et al (2021), they employed the use of identifying guessers with a specific focus on multiple choice test. Rasch fit

post hoc statistics was used. They used two data set, each consisting of approximately 200 beginners level English Language test takers which were split into two. In each of the data set half the test taker's answers were randomized to approximate guessing. Results obtained via a Rasch analysis of the data identified possible guessers. On each data set, 80% of guessers were identified.

In a study by Yang (2007) on methods of identifying individual guessers from item response data. Both the posterior probability method and the likelihood ratio method were based on the two state mixture modelling approach to response times. The accuracy method was based on response accuracy data. Results from the simulation study showed that under similar classification criterion, the likelihood ratio method had a higher rate of correctly identifying guessers than the posterior probability method.

A study by Ranger et al (2020) researched on the detection of cheating on E-Examinations in higher education. The researcher compared the performances of 18 indicators of cheating on e-examinations in higher education using an experimental field study. The experimental setting was a computer assisted mock examination in an introductory course in psychology conducted at the university. The experimental manipulation consisted in inducing two forms of cheating (pre-knowledge and test collusion) in a subgroup of the examinees. A person fit indices, the U statistics and response times were used as indicators of cheaters. The indicators based on the number of response patterns and the response times were capable of indicating the examinees who cheated.

Rios and Soland (2022), investigated items, examinees and country correlates of rapid guessing in PISA in the context of 2018 PISA science assessment analysis data from 264,148

examinees across 71 countries. Their results revealed that over 50% of examinees engaged in RG on an average population of 1 in 10 items

Controlling for the lower asymptote accounts for guessing. However it is imperative to also account for individual differences, in the probability that the higher ability individuals may miss easy items as a result of carelessness, attention problems, socially desirable responding, distractions or other influences such as lack of motivation to engage with an easy task (Liao et al, 2012). In a manner by which lucky guesses increases performances, alternatively carelessness can reduce the performance of a high ability examinee.

Carelessness as an Aberrant form of Response by Aberrant Respondents in the Four Parameter Logistic Model

Carelessness is commonly considered a bias in survey responses because such responses are provided without regards to the actual item content. The phenomenon of careless responding has been explained using several names such as, “content non responsivity,” “careless inattentiveness,” “insufficient effort responding,” or “careless insufficient effort” (Arias et al 2020). Other evidences from literature, portrays it as, careless responding, inattentive responding, and low test taking motivation, protocol invalidity, response invalidity, low quality data, “excessive inattention by (De Simone & Harms, 2018). These terms are sometimes used interchangeably. This form of response style could follow a random style or a non random format. Niessen et al (2016), perceived careless responding as a milder form of aberrant responding as compared to random responding which is more obvious and intentional. However in the plight of Meade et al (2017), careless responding is both intentionally and unintentionally answering of items. Careless responding is an examinee’s failure to carefully read and comply with an item content despite their ability to do so (Bowling et al, 2016). It occurs when a

respondent answers a survey with little or low motivation to comply with survey instructions correctly, interpret item content and provide accurate responses, (Huang et al 2012). Careless responses can be seen when some respondents disregard test instructions, test content and/or item response options when responding to a survey. In a scenario such as this, a careless response is not a valid representation of the respondent's true level of the intended content. In view of this, according to Meng et al (2019) the estimation of examinees' abilities and parameters might be biased in the presence of guessing and slipping effects.

The four Parameter Logistic Model enables an examinee with high trait who missed out an item or items without drastically under estimating his/her ability. It is characterized by four parameters which are the difficulty parameter, discrimination parameter, lower asymptote and upper asymptote parameters. The upper and the lower asymptote has complimentary effects, as deduced by (Cheng & Liu, 2015), by trying to cushion the effects of extreme trait levels adjusting it to their true or approximate abilities. The upper asymptote of the IRT curve remains one, which reflects that the probability of high ability examinees to successfully respond to an item is 1. Studies have shown that this is not always the case because even examinees with high abilities can make mistakes in items considered easier than their ability level as a result of carelessness or fatigue effect. The four parameter IRT model with an upper asymptote ' d ' >1 was introduced to capture this non-zero possibility of 'slip' ($1-d$) among test takers, (Barton & Lord 1981 in Do 2021). When answering an achievement test, examiners often assume that examinees will either key in the correct answer only if he or she possesses specific ability about that item, or otherwise will answer the item incorrectly, (Lord 1975, Rowley & Traub 1977 as cited by Swist ,2015). However this assumption which is expected to be true, may not always accurately

reflect what happens in practice, especially in the case of multiple choice items. The 4PLM estimation has its formula as stated below.

$$P(X_{ij}=1 \mid \theta_i, a_j, b_j, c_j, d) = c_j + (d-c) \frac{e^{1.7a_j(\theta_j-b_j)}}{1 + e^{1.7a_j(\theta_j-b_j)}}$$

Where $P(X_{ij})$ is the probability of a non zero

a_j is the slope

b_j is the threshold

c_j is the lower asymptote

d is the upper asymptote

e is the exponential

1.7 is a constant

The model adds the parameter d_i , which indicates the magnitude of the upper asymptote.

The item for the upper asymptote is estimated as follows;

$$d_i = \frac{e^{(\delta_i)}}{1 + e^{(\delta_i)}}$$

With (δ_i) being the second threshold of the 4PLM

The prevalence of careless responding estimates according to some researchers ranges from 2 percent to 50 percent of a sample, (Hong et al, 2020, Meade & Craig, 2012). Hong et al (2020), in their study reviewed some variations as viewed by some researchers are stated below, 3.5% Johnson, 2005, 3-9% Maniaci & Rogge, 2014, 10.6% Kyrtz & Parish, 2001, 10-12% Meade & Craig 2012, up to 35- 40%, Oppenheimer et al, 2009, (Arias et al 2020) . Although variations of these estimates can be seen on how careless responding is operationalized based on, the study's intention, the recruitment procedure, incentive given and what thresholds are applied. This implies that, careless responding exist in every data set in varying levels. The presence of

these form of responses is capable of arriving at wrong decisions when it is contained in a high percentage.

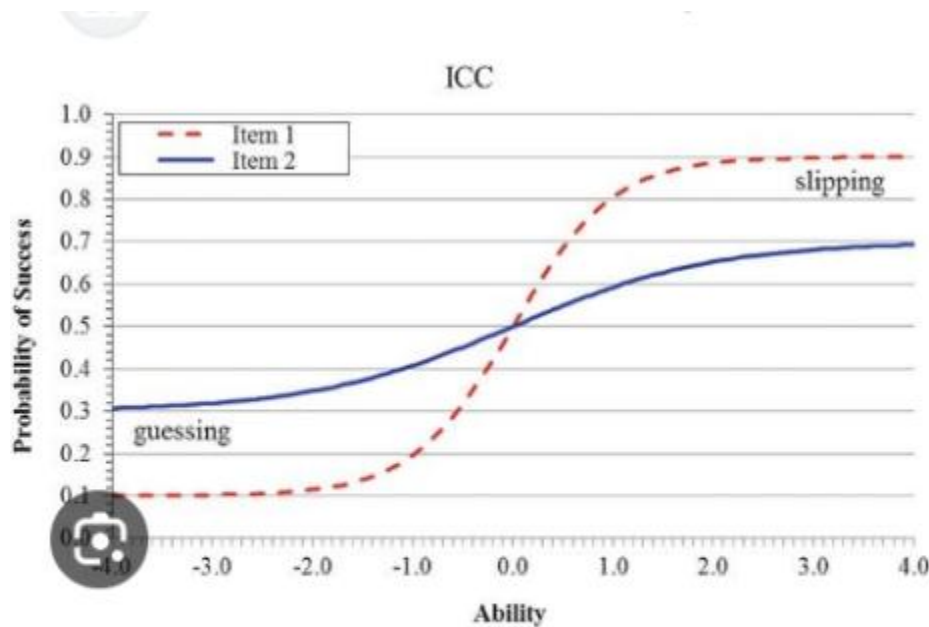


Figure 2: A Curve of a Three and Four Parameter Logistic Model (Source: Swist, 2015)

Oluwatimilehin (2021) investigated the prevalence of aberrant response behavior in Mathematic test. The study adopted the survey research design, with a population of 2,372,752 secondary school students in Southwest Nigeria. A multi-stage, systematic, simple random sampling and a stratified random sampling techniques were adopted in selecting 1800 senior secondary school students. The instrument used for data collection were a mathematics achievement test and a questionnaire titled, Survey of factors responsible for Aberrant Response behavior in Secondary School Mathematics Questionnaire. The researcher analyzed the data using descriptive and inferential statistics. Matrix Laboratory (MATLAB) programme was used

to compute, aberrance values for the response of each student to MAT. The result showed that there was a high prevalence of aberrant behavior in Mathematics test among the sampled students. Also that there was no association between four of the causal factors investigated, and aberrant response behavior when test with dichotomous items were used. The researcher concluded that aberrant response behavior was prevalence in Mathematics test among secondary school students.

Niessen et al (2016), carried out a study on detecting careless respondents in web-based questionnaire: which method to use? The study was an experimental study, involving 266 participants. The instrument used for the study was the internet personality item pool (IPIP) questionnaire. They used a multi-test extensions of person fit statistics as alternatives and applied these methods to data collection. Some respondents received instructions to respond quickly and a simulation study. The sensitivity and specificity of methods with person fit statistics were compared. Their findings revealed that 70 participants were identified as aberrant while 196 were identified as normal.

Meade and Craig (2012) identified careless responses in survey in two studies. They examined several methods for identifying careless responses including special items designed to detect careless responses, response consistency indices formed from responses to typical survey items , multivariate outliers analysis, response time and self reported diligence. The result from their findings indicated an approximation of 10% to 20% of undergraduates completing a lengthy survey for course credit were identified as careless responders.

Kountur (2016) carried out a study on detecting careless responses to self reported questionnaire. The researchers purpose was to examine whether the respondent's goodness of fit test score can be used to indicate careless responses in completing self report questionnaire. An

experimental research design of a self reported questionnaire was conducted with 205 respondents divided into two groups. The first group responded truthfully to the questionnaire while the second group responded carelessly to the questionnaire. 185 respondents were selected as the group of true responses, while the remaining 20 respondents were classified as the group of careless respondents.

Avcu (2021) studied the impact of aberrant responses on IRT based model estimations. They adopted a descriptive research using simulated data. Data was collected from one thousand and four university students enrolled in eight different universities, using Generalized Anxiety Disorder – 7 scale. The data collected were analyzed using Perfit and Mirt packages in R programming. They found that misfit persons had an effect on the model fit statistics, item fit statistics, item discrimination values. They also added that the amount of information provided by the items, as well as the total amount of information provided by the test, and the empirical reliability levels across different levels of ability trait were invariant.

Senel, et al (2015). They studied effect of correction for guessing formula on psychometric characteristics of test, using a correlational research on a group of one hundred and twenty three 8th grade students in a secondary school. The first test was conducted with the instruction of correction for guessing formula on the scores. Thereafter same test was also administered after a thirty days period, for impending retention effect, without applying the correction for guessing formula on the scores. Their findings point out that there is a significant difference in test and item when statistics between the two applications of correction formula were used and not used. However the effect size was determined to be moderate.

Ozdogan and Dogan (2018) did a study on the effect of the correction of self assessment based chance success on psychometric characteristics of the test. First the data were cleared of

chance success by means of correction for guessing formula and self assessment, and then statistical analysis were conducted. Item discrimination showed an increase when the correction for guessing formula was used, and when self assessment was used, they showed variability. The test validity increased when correction for guessing formula was used and when self assessment was used, a slight decrease was observed. Besides this study examined the effect of correction for chance success upon corrected self assessment based on IRT guessing parameter. It was observed that the data that were not corrected in accordance with chance scores had higher guessing parameters than those corrected in accordance with self assessment. In addition, it was evident that the difference between the guessing parameters of the uncorrected data and the data cleared of chance scores by means of self assignment was significant.

Arias, et al (2020) investigated on, A Little Garbage in, lots of Garbage out in assessing the impact of careless responding in personality survey data. The aim of the study was to investigate the extent to which carelessness and insufficient effort responding contributes to the biasing of data. The sample for the study was . An analysis of dimensionality, internal structure and data reliability was performed on four personality scales of extroversion, conscientiousness, stability and dispositional optimism, using two independent samples. A Factor Mixture Model (FMM) was designed to detect to identify careless insufficient effort (CIE) respondents. Between 4.4% and 10% were identified as CIE cases. The complete sample revealed that all the theoretical models obtained an unacceptable fit, while the clean sample fitted all theoretical models satisfactorily. The result also proved that a limited amount of CIE data can lead to a drastic deterioration of the fit of the theoretical models, produce large amount of spurious variances, raise serious doubts about the dimensionality and internal structure of the data and reduce reliability with which the trait scores of all surveyed are estimated.

Marasi, et al (2019) studied to observe if participant carelessness is a substantial problem with survey data, that significantly influences or biases the results of statistical analysis on correlation, t-test and simple linear regressions. The sample for the study was six hundred and seventy-eight participants. Based on the findings, participant carelessness does not appear to be a substantial problem or demonstrate levels of bias in the result. There are two significant difference between the full and careful samples with the t-test and the regression comparisons of fit statistics demonstrate the careful samples to have a weak improvement over the full sample. However none indicated bias.

Antoniou, et al (2022) Studied the psychometric analysis of Raven's coloured progressive matrices (CPM): Evaluating guessing and carelessness using four parameter logistic Item Response Theory model. A sample of one thousand, one hundred and twenty seven children within the ages of 5-11. The CPM has three forms of increasing difficulty, which are the A, AB and B. Guessing and carelessness were assessed using the lower and the upper asymptote of the three parameter logistics and the four parameter logistic Item Response Theory Models, respectively. Optimal Model fit was judged using the difference Log Likelihood test and information criteria. They documented that guessing, but not carelessness was evident in the AB and B forms of the CPM, with successful guessing being more prevalent in the AB form. They concluded that non verbal IQ estimation in CPM should include variable estimation accuracy.

Kam (2019) in his study of careless responding threatens factorial analytic results and construct validity of personality measure, used a sample of 436 students, comprising of 289 females and 146 males. This was selected from various universities in Shanghai for an online survey. The instrument for data collection was a 5-point Likert scale having 60 items, ranging from strongly agree to strongly disagree. The result of the study revealed that, careless

respondents distort factor loading pattern, careless responding may threaten convergent validity, received limited support.

In the study carried out by Schneider, May and Stone (2018) to examine the impact of careless responding in internet-based quality of life assessments. 2000 subjects were part of the study who completed the patient-reported outcomes measurement information system (PROMIS). Latent class was used to identify groups of non-careless and careless respondents from the attentiveness checks. Their study found that about 7.4% of the participants were classified as careless responders, and that, no substantial differences in the reliability PROMIS measures between careless and non careless responder groups.

Hormann and Schudlik (2021) who investigated a study on the identification and compensation of aberrant response patterns, used a sample of 160 in the DRL project Next Generation Train (NGT) by Winter, 2012. Data from studies that examined the impact of different heating, ventilation and air conditioning (HVAC) system on thermal comfort of human subjects. Based on this approach, a full sample was compared with a cleaned sample to examine whether aberrant responses have significantly biased the results. They concluded that the difference were negligible, which is a proof for the data quality.

Assumptions and Models of IRT

In IRT, there are some basic parameters on which an item is built upon. These parameters are the b , a , c and d . Each or a combination of these parameters has a bearing on the model it represents.

Item Difficulty, 'b' Parameter

This parameter indicates the position of the item. That is, the value that reveals how difficult or how easy an item is. The item difficulty identifies the proficiency to which an

examinee has at least 50% chances of answering an item correctly. The difficulty of an item is the theta level of the item and it varies across each individuals and may vary across each item. In IRT, trait level and item difficulty are inherently connected. Item difficulty refers to the amount of trait level necessary for an examinee to pass the item (DeVellis, 2012). Item difficulty is an estimate of the skill level needed to pass an item. Examinees with proficiency above the (θ) level of the item (0.5) would get the item right. In items having high b- values, low ability examinees may not have the probability of correctly responding to the item, while item with low b-values are easy items which examinees even those with low ability have probability of answering the item correctly (Harris cited in Ojerinde, et al, 2012).

An item that is difficult for an individual may not be same for another examinee. The difficulty of an item reflects the amount of the trait that is needed to likely choose the correct response of 1, than the wrong response scored 0. An examinee with high ability in Biology will correctly answer items in a Biology test than an examinees whose ability is low in Biology. The difficulty of an item indicates where the item function along the ability scale. It ranges from -3 to +3, although theoretically, it ranges from $-\infty$ to $+\infty$. Items with difficulty of -3 are referred to as easy items, while items with difficulty of +3 are considered difficulty items. Items with difficulty value of -1 will function best among the lower ability examinees while a value of +1 will function among higher ability examinees. It explains that, easy item can be correctly answered among the low and high ability examinees and a difficult item is answered among the high ability examinees. Curves of different difficulty levels are shown below.

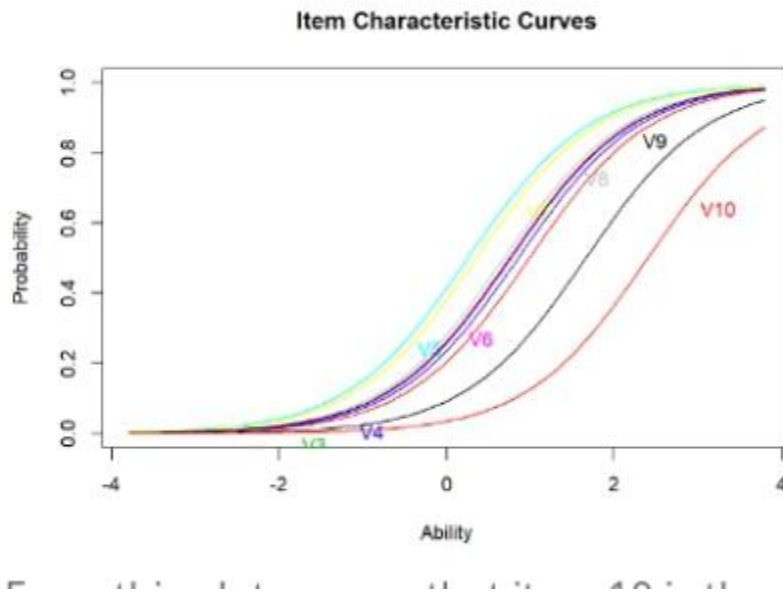


Fig 3: Curves showing different level of difficulties (Source: Woods, 2017)

This plot presents curves representing different difficulty levels. Item 10 is the most difficult item. That is why its curve is farthest to the right, while item 5 is the most simplest as its curve is farthest to the left.

Moyinoluwa (2015) in his work, investigated the psychometric properties of mathematics examination conducted by NABTEB, NECO, JAMB and WAEC. He used descriptive survey design to seek information and adopted a multistage stratified sampling for his sample. From each of the 6 geopolitical zones, 2 states were randomly selected to obtain a total of 12 states. One co-educational federal government college was purposively sampled from each state, plus 3 public schools, one private secondary school and one technical college were selected from each state. 30 SS3 students, using the systematic random sampling technique were selected from each of the sampled schools. The instruments used were past question papers developed in four common subjects offered in public examination. It was revealed that a fairly high proportion

of the test items have difficulty index within the ranges of 0.25 to 0.75, while other psychometric characteristics were found to be generally acceptable.

Item Discrimination (a-parameter)

Discrimination is the separation of a set into different parts. In this case, discrimination applies to how an item or scale separates different levels of examinees into their different ability location (low, average and high) groups. Items on a test differ in degree to which they discriminate between highly proficient examinees and less proficient examinee. This characteristic of an item is referred to as item discrimination. Item discrimination as defined by Gajjar, Sharma, Kumar and Rana (2014) is the capacity of an item to discriminate between examinees of higher and lower abilities. When high ability examinees gets correct answers from most of the test items and low ability examinees gets incorrect answers, this means that the item discriminates between low and high ability examinees. As cited by (Harris 1996 in Ojerinda, et al, 2012), it is defined as the slope of item characteristic curve at the point of intersection. The slope or discrimination parameter 'a' describes the strength of an item's discriminating between testees with trait levels (θ) below and above the threshold, 'b'. The 'a' parameter describes how well an item can differentiate between examinees having abilities below the item location and those having abilities above the item location.

One of the purposes for which an instrument is constructed is to differentiate (discriminate) between examinees who are knowledgeable from those who are not knowledgeable or in an attitude scale, between those who have positive attitudes from those who have negative attitudes. Mallikarjuna and Natarajan (2012) stated that the discriminating parameter tell how fast the probability of success changes with ability near the item difficulty. A higher discrimination means that the item differentiates among examinees with different levels of

the constructs. The inherent implications for standardized testing when test items can differentiate between examinees of varying abilities makes discrimination pivotal in IRT (De Ayala, 2009). This property reflects the steepness of the item characteristic curve. Items with better discrimination have steeper curves while those with lesser discriminating index have flatter curves. Items that fall within the ranges of 0.26 to 0.35 are good discriminating items, while values of 0 to 0.25 are not acceptable. Curves representing different discriminating levels are presented below.

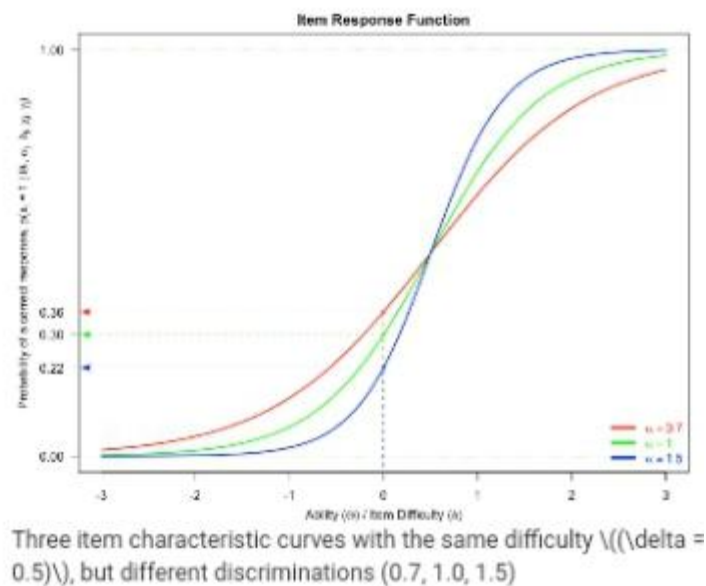


Fig 4; Curves of varying discriminations

The graphs have varying discriminations because their rising are different and as such, because the curves do not rise in the same manner.

The Pseudo Chance Parameter ‘c’

There are times when low θ examinee would get a difficult dichotomous item right by guessing. This is because from the options provided, the examiner could do a random guess of the correct answer. This can be sometimes called the ‘c’ parameter the guessing parameter, or the pseudo chance, because examinees with very low θ might be privileged to get the item

correct by guessing. The guessing parameter c is the chance of examinees getting an item right by guessing alone (Obinne, 2012). Lord 1981 as cited in De Ayala (2009), stated that in a standardized tests that is well developed the ‘ c ’ parameter tends to be somewhat lower than chance since good distractors draw examinees low in ability away from the correct answer. In a scenario such as this, low examinees will find it very difficult to key in the correct answer as it seems to them that all the options are correct.

Examinees guess because they do not have adequate knowledge to provide correct answers but are interested in boosting their performances. This is considered true because any examinee who knows the correct answer will not want to do a guess work, which may result to him failing the item, otherwise to have been correct.

Guessing results in students who do not have the required knowledge to respond to the item or who has a partial knowledge about the item to respond to the item, all in an attempt to boost their performances. Items with c -values of 0.30 or greater are not very good items. It is desirable to have the c values at 0.2 or less (Warm 1978 as cited by Obinne 2012). However Ainsworth (2015) advised that, the value of the guessing parameter must be in the range or approximate the reciprocal of the number of options presented in the multiple choice items, for it to be within the acceptable range. It is of essence to correct for the probability of correct responding by guessing, as it helps to assess the magnitude of correct guessing for examinees with infinitely low ability levels opined by (Antoniou, Alkhadim, Mouzaki & Simos 2022). The guessing parameter c_i is expressed as follows

$$c_i = \frac{e^{(\gamma_i)}}{1 + e^{(\gamma_i)}}$$

With γ_i being the second threshold of the 3PLM, reflecting the lower asymptote of the ICC.

Careless Parameter, 'd'

Careless responding or insufficient effort responding occurs as a result of participants not paying enough attention to read survey items, not fully understand the items, or not retrieving the necessary information from his memory, or did not integrate information from the memory with the items before responding to them, (kam 2019). Some research have shown two types of careless respondents. The picking of random responses to each item, is the first type of careless responding. This may deflate correlation among items in a scale, and also lead to variable scores becoming more similar to each other, which may result to inflated inter-correlation, according to Kam & Mayer, 2015 in (Kam, 2019) . Drawing from this point, whatever type of carelessness that an examinee involves himself in will cause a negative shift on the meaning and usefulness of the test.

Assumptions of IRT

Adopting IRT statistics in any testing signifies that, a number of assumptions must be relied upon. IRT models are subjected to some strict assumptions about the data to obtain viable parameter estimates. These assumption are the guiding principles upon which the models are being built on. In line with the construction of a test, these assumptions tend to guide the test in order to ensure a valid test. According to Mahmud 2017, there are three basic assumptions of IRT which are;

1. Unidimensionality (U)
2. Local independence. (LI)
3. Item response functions

The first assumption of unidimensionality is applied in order to prove that the instruments only measure one dominant dimension. This means that the item collectively measure a unique

underlying latent construct for each examinee and that only one latent trait influences the responses to items. It is when a single latent trait accounts for all the common varies among item responses (Morizot, 2017). Although unidimensionality may not be strictly met because there may be some tests taking factors that affects test performances such as, test anxiety, test motivation, test sophistication, speed of performance and other cognitive skills. The dominant component factor is what is required for the assumption of unidimensionality to be met satisfactorily by a set of test data. This dominant component factor is referred to as the ability measured by the test. IRT is bases its assumption that the items are measuring a continuous latent variable ranging from $-\infty$ to $+\infty$. If the assumption of unidimensionality holds, then the responses of a testee to an item will be independent of his or her responses to another item, conditional on the latent trait.

There are several methods of determining unidimensionality. Suitable methods include conducting an exploratory factor analysis and observing the values in the eigenvalues, the ratio of the first eigenvalue to the second and subsequent values, make up the 'knee' or bend in the scree slopes which reflects unidimensionality (Ruscio & Roche, 2012). In cases where factor analysis is used to examine patterns of covariation among responses, where multidimensionality is found, each factor can then be used as a unique scale.

Local Independence

Local independence assumption in Item Response Theory also prove its objectivity in measurement. It follows that knowledge inherent in one item should not lead to the understanding of the other items in anyway. Nenty (2014) is of the view that no systematic source of variation, other than the trait under measurement, should underly response to the test items. This assumption believes that for a person's true ability to be estimated, the probability of

an examinee getting an item correct must not be dependent on the responses given to other items in the test. This does not mean that the items will not correlate with each other, but that responses on the examinees performance on different items on the test should be independent, (Ayanwale, 2017). Local independence also means that the probability of getting an item correctly is unaffected by the answer given to other items in the test. This implies, no item should be dependent on another item for sustenance. In line with this, no item should provide clue to the answer(s) of other items as it specifies that, only the examinees' abilities and the characteristics of the item should influence responses. Local independence also applies to the examinees, which means that all examinee's scores are independent of all other examinees' scores, as opined by (Adedoyin, 2013). According to Emberston and Reise (2000) independence assumption is very important in parameter estimation. This means that before applying any IRT model, local independence must be assumed. The reason for this is because of the response pattern probability which is seen as a simple product of the individual item probability. The assumptions of unidimensionality and local independence are related in that, items found to be locally independent will appear as a separate dimension in a factor analysis, (Reeve, 2020). If local independence is not met, then there will be an inappropriately representation of the response patterns in standard IRT model. Items that display local independence indicates that the items are statistically independent, each item exhibits its qualities, and examinees good display of ability in unfolding the characteristic function about them, (Yen, 2013). Factor analysis and model fit provides a satisfactory evidence of local independence assumption. According to Ainsworth (2015), items that are locally dependent should be deleted from the scale so that local independence can be achieved. In line with this assertion, if such items are not deleted from the

scale, a close approximation of examinees' ability will not be attained, since knowledgeable and unknowledgeable examinees will be able to a reasonable extent, get the answers correctly.

Item Characteristics Curve (ICC)

Item characteristic curve is fundamental to item response theory as it is the basic building block used in IRT. The relationship between the probability of correct response to an item and the ability scale is described by the ICC. The difficulty and discriminating parameter defines the curve. The 'a' parameter represents the slope, and it is defined by its steepness. A strong relationship between the ability and a correct response reflects a steeper slope. According to Zenon, Hutz, Yoo & Hambleton, (2016), ICC specified by a model, shows the relationship that exist between the item responses and the latent traits. When test items are scored using binary format, ICCs tend to be seen in the Guttman presentation which is an S-shaped curves and match the probabilities of examinees successfully answering a test item as a function of their ability. According to Adedoyin (2013), "The flatter the ICCs curve, the less the item is able to discriminate since the probability of correct response at a low ability levels is nearly the same as it is at high ability levels and the steeper the curve, the better the item can discriminate".

Items that are easy are shifted to the left on the scale measuring the trait, while those that are difficult are shifted to the right end of the measuring scale. Items with higher discriminating values have higher slopes than those with lower discriminating values. The technical property (descriptor) of an ICC is the difficulty of the item.

Item Information function

The item information presented by the item is a quantity that is related to the difficulty and discrimination parameter. It reflects the amount of information each item or a scale provides across the ability range of the students. While some items provide more information, some others

provide less. Hence the larger the amount of information provided by the item, the greater the precision of the measurement. Reeves, (2009) stated that the index of information functions indicates the range of traits level over which an item or a test is most useful for distinguishing among examinees. The precision of measurement for persons at different levels are characterized by this information. Underlying their latent construct. Examinees with higher information denoting more precision and vice versa. An item measures ability with greatest precision at the ability level corresponding to the item's difficulty parameter. A higher degree of information that the item provides about the respondent's ability level reflects a higher level of discrimination. As a result, the amount of information provided by an item determines the value of 'a' about the respondent's ability (De Ayala 2009). The amount of item information decreases when ability level departs from the item difficulty and approaches zero located at the extreme of the ability scale. Each item provides some information about the underlying trait and the information describes how well each item performs as a function of the latent trait. Thus a higher information value is associated with a small standard error of measurement (SEM), (Le, 2013).

The shape of the information curve is associated with the item parameters. The higher the item discrimination index, the more peaked the information curve will be, thus higher discrimination indices provide more information concerning examinees whose trait level is close to the item's threshold value. The item difficulty parameter determines where the item discriminating value will be located and thus, the information function. The test information curve is the summation of all the item information values, (Lord 1981 in De Ayala 2009). The level of information in a test will be much higher than for a single item information. This is because a test is appropriate in measuring the level of the presence or absence of a trait than would a single test item. Thus a test measure ability more precisely than does a single item. In

addition to the information about a test is that, the more items in the test, the greater the amount of information provided, and as such an examinee's ability will be measured with greater precision in a longer test than will shorter tests. A curve of a test information function is shown below.

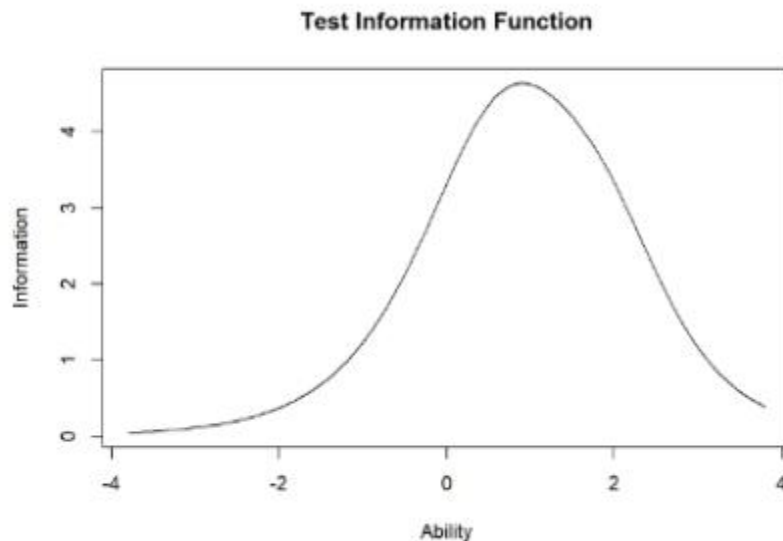


Figure 5: A Test Information Curve (Source: Woods, 2017)

The item characteristic for the whole test shows that the test provides the most information for slightly higher than average ability levels, but does not provide much information about extremely high or low ability levels. In a field research, it is required that the information gathered from a data set is reliable to the extent that it is with minimal or insignificant level of aberrancy.

Item Parameter Estimation

In IRT, there are some fundamental estimation methods used for estimating item and person parameters. These include conditional maximum likelihood, joint maximum likelihood, marginal maximum likelihood and Bayesian. Of these estimation methods, there are two basic

estimation situations in which an item and person parameters can be estimated; firstly, estimation of ability with item parameters known and secondly the estimation of ability and item parameters simultaneously. These four estimation methods adopt either of the two estimation situations in its analysis or applications. Johnson (2007) further stressed that these basic estimation methods rely heavily on the assumption that individuals are independent of one another and that the item responses of a given individual are independent. Estimation of items and examinees' characteristics can be performed separately or simultaneously, depending on the method of estimation used. There are several statistical softwares for estimation of person and item parameters. These include EIRT, BILOG, BIGSTEPS, BILOG-MG, IRT-LAB, IRTDAT, IRTDIF, IRTGEN, IRT Painter, IRTGRAPH, MULTILOG, NOHARM, PARSCALE, RASCAL winBug Mirt Library, SAS Support and many more. The particular software intended to be used by the researcher is dependent on analysis to be done. Although some of these softwares can be used to run same analysis or for the purpose of comparison of the results gotten from different analysis.

The purpose of parameter estimation is to find out which of the item characteristic curves, whether normal or logistic, best fit the item response model. In Maximum likelihood estimation, an iterative procedure is repeatedly 'tweaked' until some criterion is sufficiently optimized. In the first step, values are used to obtain likelihood estimates and to generate start values, optimization methods are employed. The changes in the likelihood estimates are evaluated in the second step. The process is iterative because the first and second stages are repeated until there is very little change in the estimates or the estimates 'converge'. In maximizing the likelihood, the optimization may arrive at a local optimum. To check this, the procedure can be re-started using a different initial value to see if the same converged solution appear, (Millsap, 2008). Failing to

converge on a solution indicates problem with model-data fit. Three types of maximum likelihood estimation are often used to estimate parameters in IRT they are, Joint Maximum Likelihood (JML), Conditional Maximum Likelihood (CML), and Marginal Maximum Likelihood (MML).

Joint Maximum Likelihood Estimation (JML)

Birnbaum in 1968 developed the JML estimation method. He adopted a two-stage iterative procedure for estimating item and ability parameters jointly. The iterations were used to estimating the ability parameters with the initial values of the item parameters already known. Then to estimate the item parameters, the final values in the estimation was treated as known ability parameters. This two-stage procedures were repeated until both the estimates of the ability and item parameters converged. The JML method was straight forward, but several problems were associated with its use. Among the problems identified were that, parameter estimation in JML was inconsistent. The item parameters are structural parameters, which are fixed by the length of the test, and the ability parameters are incident parameters, when the items are ability parameters are estimated jointly, because there is increase in the number of ability parameters, as the sample size increases.

Conditional Maximum Likelihood Estimation (CML)

Due to the inconsistency and biased estimates of the item parameter in the JML because they are jointly estimated with the ability parameters, the CML was developed. The CML estimation technique was propounded by Anderson 1972 in contrast to the JML, provided consistent and efficient parameter estimates. It was achieved by factoring out the unknown ability parameters from the likelihood equations. Sufficient statistics were required for this procedure for the item and ability parameters, which were only available in the 1-PL logistic

model. The number of items correct was a sufficient statistics for estimating the ability parameter and the number of correct responses to an item was a sufficient statistics for estimating the difficulty parameter. The likelihood function $L(\mathbf{x}/\theta)$ was replaced by $L(\mathbf{x}/\mathbf{r})$ in CML, where $\mathbf{x}$ is a response vector which contained each examinee's response pattern in the sample, while the number correct of each examinee was represented by the vector $\mathbf{r}$. It can be shown that $L(\mathbf{x}/\mathbf{r}) = L(\mathbf{x}/\theta) / L(\mathbf{r}/\theta)$ which is independent of θ because the terms in the numerator and denominator cancel out each other.

The separation of the item and ability parameters estimation, is an advantage attached to the CML. Although it also has some limitations, such as no parameter estimation can be obtained for zero or perfect scores. Examinees having the same number of correct items but different patterns of responses, will be given the same ability estimates and, there is problem estimating parameters for a long test in the CML, resulting to complicated patterns of missing data and, polytomous items with many response categories.

Marginal Maximum Likelihood Estimation (MMLE)

In IRT, MML is the most frequently used procedure for estimating the parameters. MMLE adopts a Bayesian method in its estimate of item parameter. One of its assumption is that the latent variable θ has a normal distribution. Unknown trait levels are estimated in MML by first expressing the response pattern probabilities as expectations from a population distribution. Its advantages over the other ML methods include; Firstly, MML is applies to all types of IRT models. Secondly, it is very efficient for test having different lengths. Thirdly, the its estimate of item standard errors may be justified as good approximations of expected sample variance of the estimates. Fourthly, it is capable of estimating perfect scores. The prior knowledge about the

examinee distribution $p(\theta)$ is treated as a prior and the item difficulty parameter is indicated as B . That is, MML estimate for item difficulty parameter (B) maximize

$$L(B/X) = \prod p(x_i/\theta, B) p(\theta) d\theta$$

Therefore, a posterior distribution ($p(B/X)$) is obtained for item parameters by multiplying $L(B/X)$ by $p(B)$ (Misley, 1986)

Person Fit Statistics (PFS)

Person fit statistics is a statistical procedure used in IRT to determine examinees whose response pattern do not match with their ability levels. PFSs are categorized as IRT based parametric and non parametric statistics. In the non parametric statistics, person fit indices are estimated, based on broad assumptions related to non-parametric IRT models. Situations that may lead to invalid score inferences include when an examinee response pattern does not fit the measurement model as in an IRT model. This statistics classifies an observed response pattern as mis fitting if too many easy items are answered incorrectly and or too many difficult items are answered correctly. Examples of non parametric PFS are the Harnisch and Linns (1981) modified caution index C^* , Vander flier's 1982 U3 index K.K. Tatsuoka and Tatsuoka's 1983 norm conformity index NCI and Sijtsma's 1986 Ht coefficient.

The estimation of the person fit indices in the parametric IRT PFS is the fit of an examinee's response pattern in relation to a given IRT model such as the 3PLM. PFS of these kind, uses estimated ability and item parameters in computing the expected response indices which is compared to the observed response patterns. If the probability of a correct response from an examinee is high according to the IRT model at hand, the hypothesis is posited that the examinee's answer to the item should be correct and vice versa. A person misfit is observed if the observed data does not support the hypothesis, and such a response pattern is considered to

be unexpected, aberrant or mis fitting. The logic of this statistics is typically to check whether an observed response pattern fits an expected response pattern derived from a testing model. Parametric IRT statistics include Wright and Stone's 1979 Ustatistics, Wright and Master's 1982 W statistics, Drasgow et al 1985 I_z statistics and Snijder's 2001 I_z statistics. In addition to determining the methods used in deriving person fit statistics, He et al (2018) grouped them into three categories; Firstly, likelihood: the likelihood approach examines the likelihood that the test taker's response pattern agrees with the model predicted by the item response pattern, with higher maximum of the likelihood functions indicating better agreement. Secondly, coverience: examines the degree the test-takers response pattern diverges from the gutmman perfect pattern. If a test taker answered all easy items correctly but more difficult items incorrectly on his\her score pattern a gutmman perfect pattern is attained, and Thirdly Deviation: examine the sum of differences (or squares of the differences) between the observed responses and the predicted responses, indicating layer deviation of the observed item response pattern from the predicted response pattern. Generally in PSF statistics, invalid inferences may be made if the measurement model fails to reflect accurately the real aspects of examinee responding processes. The statistics can be used in various empirical settings such as education, clinical testing and high stake testing, (Conijn 2013 in Mousavi et al 2016).

Concepts of Validity and Reliability

The fact that an instrument measures exactly what it proposes to measure is termed validity. This is the purpose of a test. The extent to which a scale or test measures what it purports to measure is termed validity. An instrument is valid when it accurately measures a prescribed variable, it is then considered a valid scale for that particular variable. For a test or instrument to have validity, there should be appropriateness, meaningfulness, correctness and

usefulness of the inferences a researcher makes (Frenkel et al 2012). In qualitative research, validity means appropriateness of the instrument and the processes of data collection, whether the research questions are valid for the desired outcomes, appropriate methodology for answering the research questions, appropriate design for the methodology, appropriate sample and data analysis procedure and finally, the results and inferences are appropriate for the sample and the context. Validity tries to explain the truth of research findings as explained by (Zohrabi, 2013). Validity exposes the strength of a measuring instrument in measuring the right things for the particular use of the test,

The type of behavioural domain to be assessed depends on the type of validity to use. Ezeh (2013) stated that validity of a test refers to the extent to which a test measures what it is supposed to measure and nothing else. Therefore, the validity of a test depends on the purpose for which the test was developed. This means that a test which is valid for assessing achievement in SSII Biology may not be valid for assessing achievement in SSIII Biology. Uzoagulu (2011) outlined the following methods for determining the validity of the test instrument they are, face validity, content validity, construct validity and criterion referenced validity (predictive and concurrent validity). These different methods of establishing validity of an instrument is crucial to the instrument for determining the usefulness of the instrument.

Face Validity

Face validity is the validation of an instrument by the validator who reads through the items in the instrument and determines if the items are appropriate for the examinees. It is a subjective judgement on the operationalization of a construct. It is the degree of the relationship between a measure and a specific construct, in the judgement of some stake holders in education and non-experts such test taker. In this scenario, the relevance of a test to the person taking the

test simply explains face validity. It judges the appearance of the scale in terms of readability, feasibility, the clarity of the language used and consistency of style. Face validity refers to the appropriateness of the test in relation to the course on which test is based (Anikweze, 2010). A test has face validity when it appears valid to examinees who take it, personnel who administer it and even to other untrained observers.

In another sense, face validity refers to researcher's subjective assessment of the presentation and relevance of the measuring instrument as to whether the items in the instrument appear to be relevant, reasonable, unambiguous and clear (Oluwatayo, 2012). It is the simplest and least precise method of determining validity which relies entirely on the expertise and opinions that face validity judges at face value the appropriateness of the instrument. By mere reading a question paper, a student can judge if the questions are in with the topics taught by the teacher. The determination of face validity is by a review of the items and not by the use of a statistical analysis. It is not investigated through formal procedures and as such may not be only determined by subject matter experts. Rather, examinees and other stakeholders, who views the test may develop an informal opinion as to whether or not the test is appropriate.

Content Validity

The extent to which items comprehensively and effectively covers the different components of that subject is termed content validity. It is a decision made by a panel of assessors who have good knowledge about the subject matter on how fitting the items look like. It can be seen as the degree to which items in an instrument reflect the content universe to which the instrument will be generalized (Boudreau et al 2001 as stated by Drost 2011). Content validity refers to the degree in which the instrument adequately reflects the constructs being measured. That is, it evaluates how well the sampled items are represents in a defined universe or

content domain. Content validity is the extent to which measurement methods covers the entire range of relevant behaviours, thoughts and feelings that describe the constructs being measured. It also reflects the relationship between a test and its instructional objectives. That is for a test to be content valid, the item should tailor its objectives and the items on the test should represent the entire range of items the test should cover. This is because the instructional objectives of a given topic points out to the relevant areas where the learners are expected to acquire knowledge on that topic. Content validity refers to the extent to which the test measures both the subject matter content and the instructional objectives designed for a given course, (Ezeh 2013).

In achievement test, it is the most appropriate form of validity. A table of specification or a test blue print is used to ensure a systematic coverage of the entire course content and instructional objectives. It involves the evaluation of an instrument in order to ensure that it includes all the items that are relevant and eliminates irrelevant items to a particular construct. The aim of content validity test is to find out how the questions really assess the construct. In other words, the test will determine which questions should be included in the test, and which should not. Assuming a researcher wants to measure balanced diet in Nigeria, it will not be necessary to have several questions on balanced diet in America. A test task is compared with the context of the construct. Its establishment is a theoretical and subjective process which is part of the instrument development process. It does not require statistical evaluation, but done by providing definitions of target constructs using literature search, focus groups and interview. (Fayer & Machin, 2016). The judgemental approach to establish content validity involves literature reviews and the follows up with the evaluation by experts judges or panels as this facilitates validation. The steps necessary to follow when applying content validity include,

An exhaustive literature reviews to extract the related items.

A content validity survey is generated

The survey should be sent to experts in the same field of the research

The content validity ratio is then calculated for each item by employing Lawshe 1975's method.

Items that are not significant at the critical level are eliminated, as explained by (Drost, 2011). On the other hand, Uzoagulu (2011) recommended that the researcher should send the test instrument to validators and specify what they should do. The validators are expected to be knowledgeable experts in that field who knows what should be included and what should not be included in the test. Only an assessor who is familiar as well as competent in the subject or discipline can determine if the test is content valid. The more the validators that are involved in the process of validating the instrument, the better for the instrument.

Criterion-Related Validity

The extent to which a measure is related to an outcome is a criterion validity. It measures how well one measure predicts an outcome for another measure. Also it is useful for predicting a performance in another situation of past, present or future occurrence. It refers to the degree to which specific criterion variables can be predicted by test scores. Criterion validity is the relationship between the scores of a certain instrument and some external criterion. Criterion related validity is a type of validity which indicates the extent to which students who have been taught based on the objectives being measured score higher on the test of those objectives than students who have not been taught (Anikweze, 2010). Criterion validity is obtained by correlating the two sets of scores from the two testing. The criterion has to be a widely acceptable measure (gold standard) with the same characteristics of the assessment tool. In assessment of a criterion validity, researchers seek to test the validity of a measure and

comparing the measurement results with the established criterion or “gold standard”. Criterion-related validity is used to predict current or future performances. It correlates test results with another criterion of interest (Burns et al 2017).

A scale is predictly valid, if the test accurately predicts what it is supposed to theoretically predict. It means that the instrument should have high correlation with future criterion (Korb, 2012). Predictive validity are criterion measured in the future. When a test is applied and the results are compared with a criterion which is applied later, it is termed a predictive validity. It measures the relationship in the performances of examinees on the test and their actual status as masters or non-masters. It is the relationship of test scores to an examinee’s future performance as a master or non-master that is estimated. It considers ‘how well the test predict examinees’ future status as masters or non-masters? Predictive validity according to Onunkwo (2012) is the most relevant for intelligence test, aptitude test, interest and attitude tests. All test used in selection of candidates (into education, business, industry, armed force amongst others) or in predicting future performance/achievement must demonstrate high predictive validity. In line with this, the result of certificate examination bodies could be used to predict performance in the University Matriculation Examination.

Concurrent validity are evidences that can be gathered to defend the use of a test for predicting other outcomes that is, the extent to which the results of a particular test or measurement, corresponds to those of a previously established measurement for the same construct as mentioned by (Drost, 2011). In concurrent validity present performance can be used to estimate some other current measure of performance. Examinees who are known to be either masters or non-masters on the content measured by the test are identified, and the test is administered to them under a realistic examination conditions. Once the test have been scored,

the relationship is estimated between the examinees' known status as either non-masters based or masters on the test. This type of validity shows evidence that examinees are correctly classified in the test. In another plight, if the score from a test already known to be valid test are highly correlated to a selection test administered to the same group of learners, then concurrent validity is obtained for the selection test. Concurrent validity refers to the degree to which a measure is correlated with other standardized measures that is theoretically measuring the same traits as the new test (Dardouri et al 2014). High correlation indices of the criterion validity is an indication that the test has strong criterion validity. Values close to 1.00 suggest correlation, whereas values close to 0.00 suggest no correlation. Correlations close to 0.70 or over are considered desirable.

Construct Validity

Construct validity is the degree to which a group of items truly represent the construct to be measured. As viewed by Ifeakor (2011), they are those educational and psychological traits that cannot be seen with the eyes, their existence can only be inferred from manifested characteristics or behavior ascribed to them. These traits can be attitudes, creativity intelligence, speed of reading, ability, interest, aptitude and so on. If a test is able to measure such psychological traits, then the test has construct validity. Karl (2012) defined construct validity as the degree to which a test measures a theoretical construct that it intends to measure. Uzoagulu (2011) gave the following suggestions in carrying out construct validity: firstly by suggesting what construct might be used for the test performance, deriving testable hypotheses from the theory surrounding the construct and carrying out empirical study to test the hypotheses. He also stressed on other methods of carrying out construct validation to include procedure of, administering more items than required, carrying out factor analysis, deleting from the list items

that indicate low or negative correlation, comparing individual characteristics of those that scored high in the test and those that scored low. The instrument will be indicative of measuring the proposed construct if proper identification and differentiation of these two groups are shown. In other words, in the establishment of a construct validity, predictions made based on the construction of hypotheses, are tested to support the instrument validity. Construct validity can be seen from two main areas, they are; convergent and discriminant validity.

Discriminant validity is the extent to which a latent variable X, discriminates from another latent variable Y and Z. It is used to test whether measurements which are expected not to be related are actually unrelated, El Hajjar (2018). The instrument employed should not be correlated with the measures of other constructs to which it should not be related. There should not be high correlation in the estimates of grades on a test with other different test. It relates to two unrelated construct that are simply discriminated. It helps to ensure that the construct that should have no relationship should, in fact not have any relationship.

When two measures of different tests that theoretically should be related, are indeed related, then a convergent validity have been met, Williams cited in El Hajjar (2018). Also an effective assessment of convergent validity indicates that a test of a perception is highly correlated with other test intended to measure theoretically similar perceptions. In other words, to demonstrate a convergent validity of a test in biological skills, the grades on the test may be correlated with grades in other tests that are also planned to measure elementary Biological ability skills. High correlations among the grades would be a proof of convergent validity. Factor analysis can be conducted to determine construct validity using Principal Component Analysis (PCA). Some researchers affirm that an instrument that is not reliable cannot be valid, implying that, a reliable instrument can sometimes be invalid, and as such, a high reliability does not

ensure an instrument validity. However, a valid test is a reliable test. A test may have higher validity in one group of test takers than in another group, but its validity will depend on the purpose for which the scores are being used.

Reliability

The degree of stability or consistency of test scores from several testing measuring the same ability is referred to as reliability. Reliability can be viewed as the extent to which an approximate result or same results on repeated testing/instrumentation are produced by an instrument. This is the degree of consistency of measures gotten from two or more measures of the same thing. Reliability is the ability for an observer or different observers, to produce a consistent result in time, from presenting aspects on coherence, stability, equivalence and homogeneity. It is one of the main quality criteria of an instrument or a scale referring mainly to internal consistency, stability and equivalence of a measures. In the view of Eboh (2009), reliability refers to the degree to which a given measurement will give the same description of that phenomenon if that measurement is repeated. It can be seen as the extent to which chance factors like the luck of draw are not affected by test scores. This implies that the reliability of test scores are consistent over different occasions of testing, with or without different editions but measuring the same general skills or knowledge and different scorings of the examinees responses by different raters. This is the extent to which test scores are free from measurement errors, as stated by Ghazali, (2016). It therefore, concerns whether a particular technique will yield the same results always if repeatedly applied to the same object. Reliability is the precision with which an educational measurement produces reproducible results. That is how accurately would scores from repeated attempts on the same assessment be replicated in the absence of changing motivation, skills or knowledge acquisition or practice effects, (McBrien, 2018).

Scores from repeated administrations closer to one another is indicative that such a test is more reliable than one with scores that varying further apart. In such a situation, measurement errors would account for those differences and can be either random or systematic (Schaugbency et al 2012).

Random errors is inconsistent and can be based on factors internal or external to the examinee and might include fatigue, physical or emotional well-being, motivation or the physical environment in which the test is administered, and it affects each individual differently (AERA, APA & NCME, 2014). When there is increase or decrease in the scores of all examinees as a result of factor(s) extraneous to the test construction process, then a systematic error has occurred. These errors are consistent for all examinees and may be due to aspects of the test administration process and may include factors such as complexity of the presentation of these items, or the language used that are unrelated to the construct being measured, inadequate instructional materials for test administrators or examinees and a mis-keyed item. Madan & Kensinger (2017), asserted that if the reliability coefficient is high, then it can be suggested that the instruments are relatively free of measurement errors. If the coefficient yields 0.7 and above, the instrument is considered acceptable, and if its above 0.8, the instrument is considered very good.

Methods of Measuring Reliability

In measuring the reliability of a test, choice of the statistical tests to be used to estimate the reliability may vary, depending on what is to be measured. Reliability of a test is measured as a coefficient and it is called the coefficient of reliability when two sets of scores are independently correlated. This coefficient can be seen as a description or the loss in efficiency of estimation resulting from measurement error. It is therefore interpreted directly as the proportion

of true variance. It means that if the reliability coefficient obtained for a Biology test is 0.90, then the estimation resulting from true variance is 90%, while the remaining 10% is due to error variance attributed to chance factors. Hinton et al 2004 in Nawi, et al (2019), suggested cut-off points for reliability coefficient, which are excellent reliability (0.90 and above), high reliability (0.70-0.90), moderate reliability (0.50-0.70) and low reliability (0.50 and below). For the purpose of this work, four important reliability criteria were reviewed; estimates of test retest reliability/stability, estimate of internal consistency, estimate of equivalence and estimates of rater or scorer reliability. Each of these reliabilities, estimate reliability coefficient in different ways. The type of research a researcher is undergoing, will determine the reliability criterion to adopt.

Estimate of Test-retest Reliability/Stability

When a test is administered to a group of examinees and at a later date, same test is readministered to the same group of examinees and the scores of the two tests are correlated using Pearson r or Spearman's rank, such a test of reliability is called a test retest or measure of stability. It is estimated by having the same examinee complete a test at two different point in time to see how stable the responses are. This indicates that the time allowed between the two testing procedures becomes paramount. As stated by El Hajjar (2018), correlating two measures gotten from two identical set of test, administered in two intervals, is the most direct way of estimating reliability. Test-retest reliability is estimated with correlations between the scores at time one and then, at time two. The assumptions underling the use of test- retest procedure are, firstly that there is no change in the characteristics that are measured over the period of time (testing effect), secondly that the period of time between the first and second test should be long enough, however short in time so that the examinees' memories of taking the first test will not

influence their scores at the time of taking the second test, and subsequent test administration. This assumption is called memory effects''. Some researchers have stated that when measures of the same thing are taken twice, their correlation will partly depend on the length of time that elapses between the two assessments. In support of this assertion, Polit and Beck, (2011) stressed that, the test re-test reliability tends to reduce when the test replication is extended. The time span between measurements will influence the interpretation of reliability in the test re-test, therefore, the time span from 10-14 days is considered adequate for the test and retest.

Estimate of Internal Consistency

This is an important measurement property for instruments that assess a single construct. An estimate of low internal consistency may indicate that the items measure different constructs, or that the answers to the questions of the instrument are inconsistent (Bonett, & Wright, 2015). Internal consistency is accessed using split half reliability and rationale equivalence reliability. The rationale equivalence reliability estimates the average of all possible halves of the split-half reliabilities.

Split Half

This is a type of reliability that requires only one test administration. It involves splitting the test into two equal halves, either by first half and second half method or by odd and even number method and then, correlating the scores gotten from both halves of the test. Heale & Twycross (2015) defined split-half reliability as a measure of consistency between two halves of a construct measure. This technique according to Chakrabarty (2013), requires only one administration, especially appropriate when test is very long. It is estimated by comparing the results gotten from one half of a test with the results gotten from the other half of same test. A test can be split in half by using first half and second half or by using the odd and even

numbered items. When the results gotten from the two halves of the test are similar, this is an indication that the test has good reliability. It is a quick and easy method of establishing reliability, which is effective with longer items measuring the same construct. Also its interpretation of coefficient results, is same as stated previously, with values close to 1.00 as ideal.

Rationale Equivalence Reliability

This form of reliability estimates the correlation between an item to the other items in the test. That is, it helps to determine how well all items in a test relates to all other items and to the entire test. Two reliability estimates are used for this procedure, they are the Kuder-Richardson formular 20 or 21 and the Cronbach alpha formular. The Kuder-Richardson formular is suitable only for a test that is dichotomously scaled. In which case, the items in the test are scored as 1 (correct) or 0 (wrong) answers. Uzoagulu (2011) stated that Kuder-Richardson formular is used to establish reliability without splitting the test as in the case of split-half method, and its yields coefficient of internal consistency. He outlined the following steps when applying the formula; firstly prepare a test, secondly determine the group that will take the test, thirdly administer the single test to the group, forthly score the test to obtain individual scores, fifthly take note of the number of items in the test. This can be denoted by K, sixthly determine the variance S^2 of the test which can be obtained by simply squaring the standard deviation of the test and seventhly find the proportion of the test takers that scored the item correctly. This can be denoted by p. It can be obtained by subtracting p from unity; $p = 1 - p$. K-R21 is a simplified form of Kuder-Richardson, since the computation of pq is eliminated, it assumes that all items are of equal difficulty and that the coefficient computed from the K-R21 is a more conservative estimate of reliability than that obtained from K-R20 (Uzoagulu, 2011).

The needed information required in K-R21 are the number of items on the test, the mean value of the test scores and the standard deviations. The assumption of K-R21 in its application is that the items are of equal difficulty while K-R20 does not require the assumption that all items be of equal difficulty. However, frequently used version of K-R21 formula is the

$$\text{K-R21 reliability coefficient} = \frac{K - M(K-M)}{K(SD^2)}$$

Where K is number of items on the test

M is the mean of the test scores

SD is the standard deviation of the test scores

Cronbach alpha or alpha coefficient is another method of estimating the internal consistency of a test instrument that is either dichotomously or polytomously weighted. In which case the scoring may be two, three or more scoring weights. Tests of achievement personality or attitude scale adopts this reliability in determining its internal consistency of the instrument. According to McNeish (2019), both Kuder-Richardson and Cronbach are measures of internal consistency in which, under ideal circumstances of no missing data, unidimensionality of items, and with binary items, Kuder-Richardson and Cronbach's alpha should essentially be the same. If items are not binary, where examinees receive partial credit, Kuder-Richardson is not appropriate and, Cronbach alpha is the better choice. The Cronbach alpha coefficient is a number ranging from 0 and 1 (Lobindo-wood, Haber, 2013).

Estimate of Equivalence or Alternate forms

This type of reliability estimate is concerned with the extent to which items in two separate instruments completely sample the same content. It can also be referred to alternative or parallel form reliability. The successive administration of two parallel forms of the same test

to the same examinees is known as equivalent forms of the test. The examinees are administered with one form of a test on the first occasion, and with a comparable form of that same test on the another occasion. It is the degree of relatedness of different forms of the same test as opined by El Hajjar (2018). It requires using different questions having similar meaning in order to measure the same factor or construct. That is, two similar test in every method except for the real factor wordings making the items to have the same terminology and difficulty levels. This two equivalent forms of a particular test are administered to the same group of examinees at almost the same point in time. Against this note, Miller (2017) mentioned that it is difficult enough to have one well-developed instrument or questionnaire to measure the construct of interest let alone two. It therefore implies that, a parallel or alternate form of a test is difficult to attain. However the correlation coefficient between these two equivalent test may be used as estimator of the reliability test, and this coefficient is called the coefficient of stability.

Estimate of Rater or Scorer Reliability

This form of reliability is concerned with the degree of consistency of the scores given to the same individuals by different scorers or raters. It measures the degree of correspondence among various examiners who mark the set of test items. The sources of error variance here is always in the different scores assigned by different independent examiners. This type of reliability is more concerned with measuring instrument whose scoring is subjective.

Biology as a Subject

Biology is the study of living things and a subject that provides part of the literacy needed for National growth and development. Despite the quest by all Nations to grow scientifically and technologically, Biology study as contained in the National Policy on Education (FRN, 2013) is a core for science students only in Nigeria Senior Secondary Schools. Biology is a subject needed by all students as it gives explanations to body anatomy and physiology, health issues,

understanding micro organisms around us, the effects of the microbes, how to control them. Biology is one of the requirements for studying science and the science related courses in tertiary institutions. The science subjects in senior Secondary Schools include, Biology, Physics, Chemistry and Mathematics. Also scientific skills of observation, identification, classification, recording, experimenting, measurement, making inferences etcetera will be developed in the individual.

Biology is the branch of science that is involved in the study of life. It is a broad field of study embracing the minute working of chemical in our cells, to broad scale concept of the ecosystems and global climate change. Biology covers all the life processes such as reproduction, respiration, movement, nutrition, growth, irritability and excretion. The life processes are characteristics of all living things either plants or animals, regardless of races and geographical locations.

According to the National Policy on Education (FRN, 2013) learning of Biology will provide students with suitable laboratory and field skills in Biology, meaningful and relevant knowledge in Biology, scientific knowledge that is applicable in health, agriculture, personal and community life matters and development of functional scientific attitudes. With the advantages of having a sound knowledge in Biology, Akinjide (2018) recommended that curriculum planners should consider Biology important to all students and therefore, the provision of the curriculum should allow all students to offer the subject.

History of National Business and Technical Examinations Board (NABTEB)

The NABTEB is an examination board which was established in 1992. This was necessitated to domesticate craft level exam which were in accordance to the provisions of the National Policy on Education, were hitherto conducted by City and Guilds, Pitman's and Royal

Society of Arts all of United Kingdom Its establishment was the climax of an evolutionary process which spanned for fifteen years from 1977 to 1992 and in which four Government panels at different times were set up to review the place and structure of public examinations in our educational system (NABTEB, 2015). Each of these panels advocated and justified the multiplication of examination bodies and in particular, a separate body to perform the functions which NABTEB now performs.

The process began with the findings of Justice Sogbetun Commission Enquiry (1978), which was set up in response public outcry on perceived inefficiency and unchecked leakages of public examinations. This was followed by the Angulu Commission that was set up due as a result of WAEC's presentation to the House of Representatives on Education in 1981 in which , WAEC advocated the necessity of setting up of another examination bodies in Nigeria to reduce the burden placed on its adequate functionality. The third was the Okoro Panel that was setup in 1989 which was made to review the Angulu's report. The forth was the Professor Akin Osiyale's Task force set up in 1991 to evolve a strategize ways to reduce the burden of WAEC bringing about higher efficiency in the conduct of public examinations. The NABTEB under Decree 70 of 1993 and other examination bodies were thus established. Since its establishment, the findings of the EtsuNupe Panel (1997), the Shonekan Vision (1997) Reports and the harmonized Report of the EtsuNupe Panel and Vision reports have supported , directly and indirectly NABTEB's existence. The National Headquarters of the Board is located at Ikpoba Hill.

Source: Ukachi and Ejiko 2018

Summary of Reviewed Literature

The review of literature was organized in subheadings to show the areas covered, as a way to providing useful and adequate information for proper investigation, and also to keep the

study in focus. Item Response Theory was the theoretical framework on which this study was hinged. IRT is based on the idea that the probability of a correct response to an item, is a function of the examinees' abilities and the parameters of the item. It is a theory that encompasses several models which sooth the characteristics of an item and examinees response pattern. It establishes a relationship between an item and the responses provided by an examinee. The examinee's parameter is usually constructed as a single latent trait. While the item parameter is anchored on the difficulty, discriminating and guessing parameters. Given a test model that assumes that the probability of obtaining a correct answer to any item increases with increase in ability, some examinees may produce aberrant response patterns whereas, others have produced normal patterns. Aberrant examinees' response patterns may be as a result of factors such as lucky guesses, slipping or carelessly inputting the wrong answer and alignment error. In whichever of these forms, the response pattern is presented, there will be a shift from the actual ability of the examinee. In line with this, there will also be a shift in his response patterns from pattern produced by examinees of about equal ability who devoted their attention more evenly across the items. The presence of these mis fitting response patterns may significantly corrupt the entire data set and the conclusion reached.

The literature reviewed showed that there are likely presence of aberrant respondents in every data set. This could result from factors that are external or internal to the examinee. The effects of this is that the corresponding ability of the student may not be attained, the purpose of the test may not be achieved and may lead to type 1 or type 2 error. The review of literature shows that studies have been done on identifying guessers, careless and aberrant examinees, the effects guessing responses has on a data set, impact of carelessness on the examinee(s) ability and impact of aberrant responses on IRT based model estimation. However, there is a dearth of

empirical studies that investigated the level of aberrant examinees as most of the studies available to the researcher were carried out in the Western and Eastern Countries. To the best of the researcher's knowledge, little study has been done to explore the effectiveness of perfit statistics in identifying aberrant respondents in public examinations in Nigeria. This study therefore seeks to fill this gap in literature, hence the determination of aberrant examinees of the 2018, 2019 and 2020 May/June NABTCE Biology Objective test items in some selected states in the six geopolitical zones in Nigeria.

CHAPTER THREE

METHODOLOGY

In this chapter, the methods and procedures used in the study are described under the following sub-headings:

- Design of the Study
- Population of the Study
- Sample and Sampling Techniques
- Research Instrument
- Validity of the Instrument
- Reliability of the Instrument
- Method of Data Collection
- Method of Data Analysis

Design of the Study

The design for the study was a survey research design of the Expost factor approach. This approach was adopted because the data to be collected are already in existence and the characteristics of the individuals and items are of interest to the researcher. Hence the survey research design was considered quite appropriate for the study. The researcher obtained a relatively large sample of candidates responses from the total poll of candidates that sat for NABTCE Biology multiple choice examination, that were administered in June/July 2018, 2019 and 2020. This was with the aim of making a general statement with respect to the examinees that are aberrant, applying the non parametric IRT statistics using the candidates responses.

Population of the Study

The population of the study was 88786 examinees who sat for the NABTCE May/June Biology objective test questions t. This was comprised of all the responses of SSIII Biology students in Nigeria, who sat for the NABTCE 2018, 2019 and 2020 Biology objective test questions. The SSIII Biology students consisted of 28121, 29254 and 31411 that sat for May/June 2018, 2019 and 2020 NABTCE Biology examination respectively. The item population was the 50 test multiple choice items each for the 2018, 2019 and 2020 NABTCE making a total of 150 item population. The population distribution of examinees responses is shown in the table below.

Table 1: Population Distribution of Biology Examinees who sat for NABTCE in Nigeria

S/N	Year	Population of Students
1	2018	28121
2	2019	29254
3	2020	31411
	Total	88786

Source: National Business and Technical Examination Board (2022)

Sample and Sampling Techniques

The sample for the study was 20,263 examinees who sat for the 2018, 2019 and 2020 May/June Biology objective test questions. It is comprised of 7086, 6447 and 6730 examinees' responses for those who sat for the NABTCE May/June biology objective test questions for 2018, 2019 and 2020 respectively. A multistage sampling technique was employed for the study and, the selection was done in three stages.

First stage: stratified sampling was adopted to stratify Nigeria into the 6 geopolitical zones, which are the north central, north/east, north/west south/south, south/east and south/west. Each state in Nigeria was classified into its respective zone.

Second stage: the simple random sampling techniques was used to select 2 states each from each geopolitical zone. The method the researcher used for the study was balloting by replacement. The names of the 36 states in Nigeria were written out in a piece paper and folded so as to avoid bias in selection. Then each State was placed in a bag bearing its geopolitical zone. After thorough shaking of the bag to ensure change in the placement of all the labelled states in the geopolitical zones, a piece of paper was then picked out of each bag at random and, recorded by the researcher as part of the state to be used for the study. This same piece of paper was then placed back into the same bag and thoroughly mixed for the next draw. By so doing, 2 states were randomly picked for each geopolitical zones for the respective years. The researcher continuously repeated the process to achieve a total of 12 states randomly selected from the geopolitical zones for 2018, 2019 and 2020 respectively.

Third stage: in this stage a cluster sampling was adopted for the study. This involved using the entire examinees' responses from each geopolitical zone. The responses from the examinees gotten from the two states, that were randomly selected for each geopolitical zone were summed. The entire responses gotten from the examinees for each geopolitical zones in each year were also separately summed. This led to a total of 20263 selected for the sample size. The sample distribution is presented in the table below.

Table 2: Sample of Biology Students who sat for NABTCE in Nigeria .

S/N	Geopolitical Zones in Nigeria	States	Years			Total
			2018	2019	2020	
1	A	A	327	1041	205	4986
		B	576	1285	1552	
		Total	903	2326	1757	
2	B	A	826	193	736	3172
		B	721	534	162	
		Total	1547	727	898	
3	C	A	385	140	87	1440
		B	35	276	517	
		Total	420	416	604	
4	D	A	2283	98	343	3184
		B	121	105	234	
		Total	2404	203	577	
5	E	A	6	44	230	2656
		B	734	809	833	
		Total	740	853	1063	
6	F	A	393	1085	458	4825
		B	679	837	1373	
		Total	1072	1922	1831	
Grand Total			7086	6447	6730	20263
Total						

Research Instrument

The instruments that were used for the study are the NABTCE May/June Biology Objective Test Questions for 2018, 2019 and 2020. Each of the instruments are comprised of 50 questions having 4 options. The soft copies of the students' response matrix (scored 1 for correct item and 0 for incorrect item), and their demographic information was obtained from the NABTEB Examination Body in a Micro Excel spreadsheet.

Validity of the Instrument

The NABTEB Biology objective test instruments were considered valid by the researcher because it is a standard examination Board. The Board which is a standardized and reputable Body that conducts examinations for senior and junior secondary schools, would have put in

enough effort to ensure the validation of the instrument's content and instructional objectives. Therefore, the instruments are presumed to be standardized and valid.

Reliability of the Instrument

The instruments been one constructed by the National Business and Technical Examination Board were deemed to be reliable because, of its nature as a standardized body in test construction and administration. In line with this, the reliability of the instruments were not re-established because in the course of this study, reliability determination was part of the study's focus.

Method of Data Collection

The researcher collected a Letter of introduction/request from the Head of Department, Educational and Evaluation and Counseling Psychology, to the Registrar/Chief Executive Officer of NABTEB. An approval from the Registrar was granted for the researcher to have access to the required secondary data. The researcher was sent the responses of the 2018, 2019 and 2020 NABTCE Biology objective test items in the form of students by item matrix. Correct responses were coded as 1, while incorrect responses were also coded as 0, in a Micro excel spreadsheet.

Method of Data Analysis

Principal Component Analysis was performed to determine the unidimensionality of the Biology objective test items, using Statistical Package for Social Sciences, (SPSS).

The IRT perfit Ht coefficient is a non parametric statistics propounded by Sijtsma in 1986 and was used to detect aberrant examineess in the NABTEB 2018, 2019 and 2020 Biology Objective Test data set. The entire students responses for the analysis was fed into the Perfit package in R programming. The Ht coefficients for every examinees were estimated using an

algorithm. Hence the cutoff value for identifying aberrant or misfitting respondents employed a bootstrap resampling procedure for approximating the sample distribution of the PFS based on generated fitting response patterns. Hence the Ht cutoff value for the 2018, 2019 and 2020 Biology sampled responses were 0.245, 0.152 and 0.311 respectively. Examinees whose Ht coefficients were less than or equal to 0.245, 0.152 and 0.311 were considered as aberrant respondents for the 2018, 2019 and 2020 respectively.

Research questions one to three were answered using descriptive statistics, which is capable of presenting a clear description of the number of examinees that were aberrant and those not aberrant. The descriptive analysis for 2018, 2019 and 2020 were presented separately to indicate the level of aberrant respondents contained in the entire sample. A sample with percentages of aberrancy of $\leq 5\%$ was classified as low level, moderate level 6% - 15% and high level 16% - 25%, as stated by (Jia et al 2019). Research question four to six were answered using Cronbach Alpha Statistics to determine the internal consistency correlation of the items in the test, before and after screening the data of aberrant examinees for the 2018, 2019 and 2020.

Hypotheses one to three were tested using the Chi-Square test of goodness of fit statistics. This statistics was used to determine if a difference existed between the non aberrant and the aberrant examinees. All the hypotheses were tested at an alpha (α) level of 0.05 level of significance.

CHAPTER FOUR

PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

In this chapter, results obtained from the analyzed data as well as the discussion of findings are presented.

Presentation of Results

Determination of Unidimensionality

Unidimensionality Test of 2018 NABTCE Biology Multiple Choice Test

For the purpose of testing for unidimensionality of the items, the scree plot as contained in Figure 6 was examined. This plot explains the dimensionality of the instrument. When the first eigenvalue is larger than the second eigenvalue, as well as other eigenvalues, then the instrument may be considered approximately unidimensional. From the scree plot the first factor been 6.725 compared to the second 3.561 is larger than the second factor compared to the third factor of 2.868, and so it continues down the graph. This is an indication of dominance because the first component accounting for more than twice the variance accounted for by the second component. This shows that the instrument satisfies the assumption of unidimensionality and thus the instrument was used for further analysis based on IRT model.

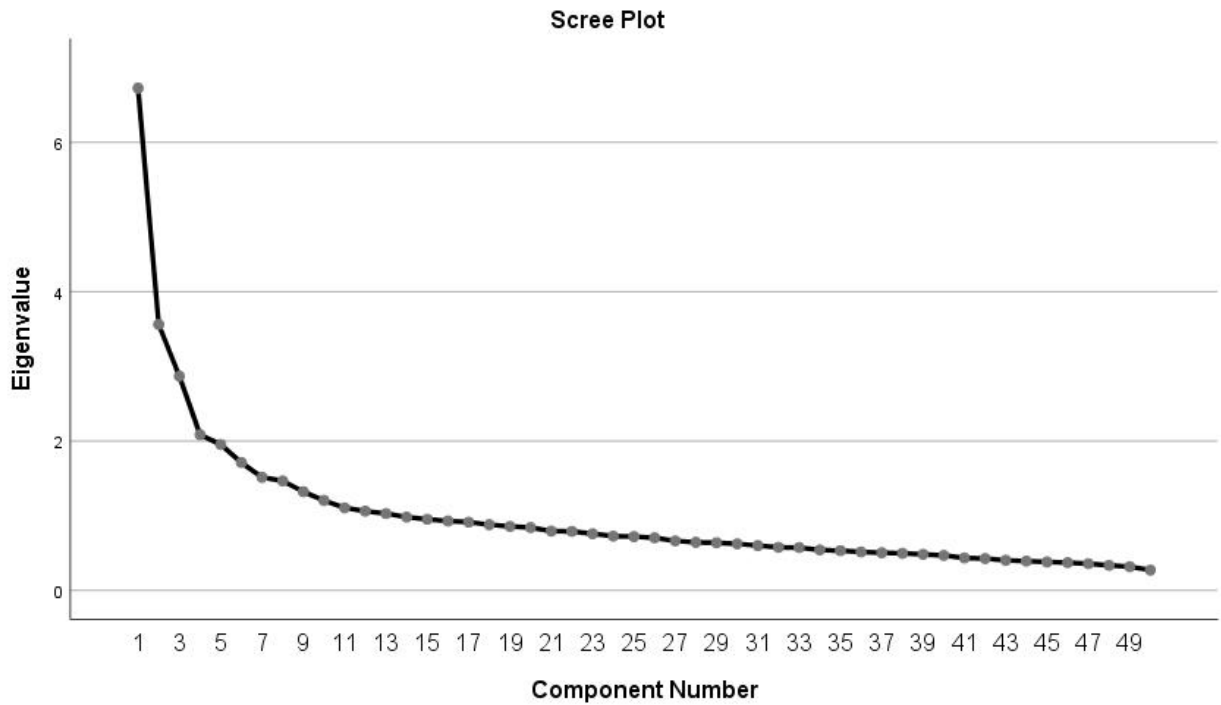


Figure 6: Scree Plot of Eigenvalue for 2018 NABTCE Biology Multiple Choice Test

Unidimensionality Test of 2019 NABTCE Biology Multiple Choice Test

In testing for unidimensionality of the items, the scree plot as contained in Figure 7 was examined.. From the scree plot the first factor been 12.685 is the largest compared to the second factor of 6.304 and same applies to the third factor been 6.055 and so, the decrease continues down the scree. This is an indication of dominance because the first component accounts for more than twice the variance accounted for by the second component. This explains that the instrument satisfies the assumption of unidimensionality and thus the instrument was used for further analysis based on IRT model.

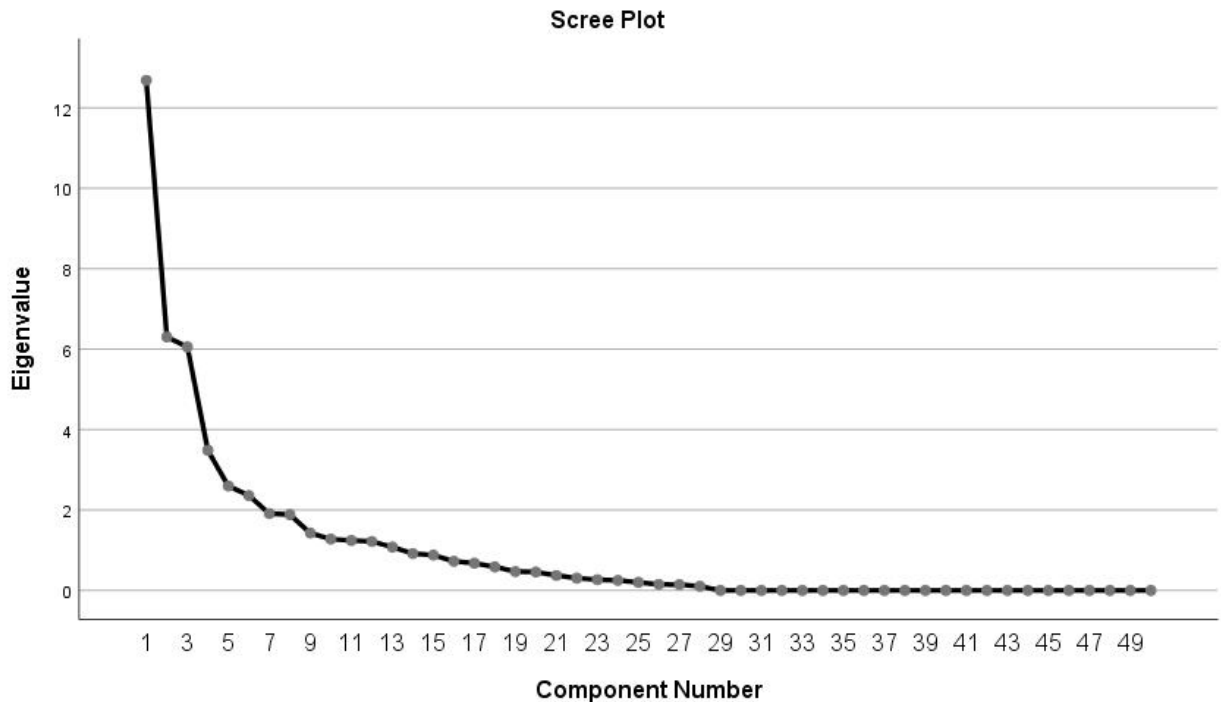


Figure 7: Scree Plot of Eigenvalue for 2019 NABTCE Biology Multiple Choice Test

Unidimensionality Test of 2020 NABTCE Biology Multiple Choice Test

In testing for unidimensionality of the items, the scree plot as contained in Figure 8 was examined. This is when the first eigenvalue is larger than the second eigenvalue, and subsequently other eigenvalues within the graph, then the instrument may be considered approximately unidimensional. From the scree plot the first factor been 10.594 compared to the second 6.351 is larger than the second compared to the third factor of 4.928 and so it goes down the graph. This is an indication of dominance because the first component accounting for more than twice the variance accounted for by the second component. This shows that the instrument satisfies the assumption of unidimensionality and thus, the instrument were used for further analysis based on IRT model

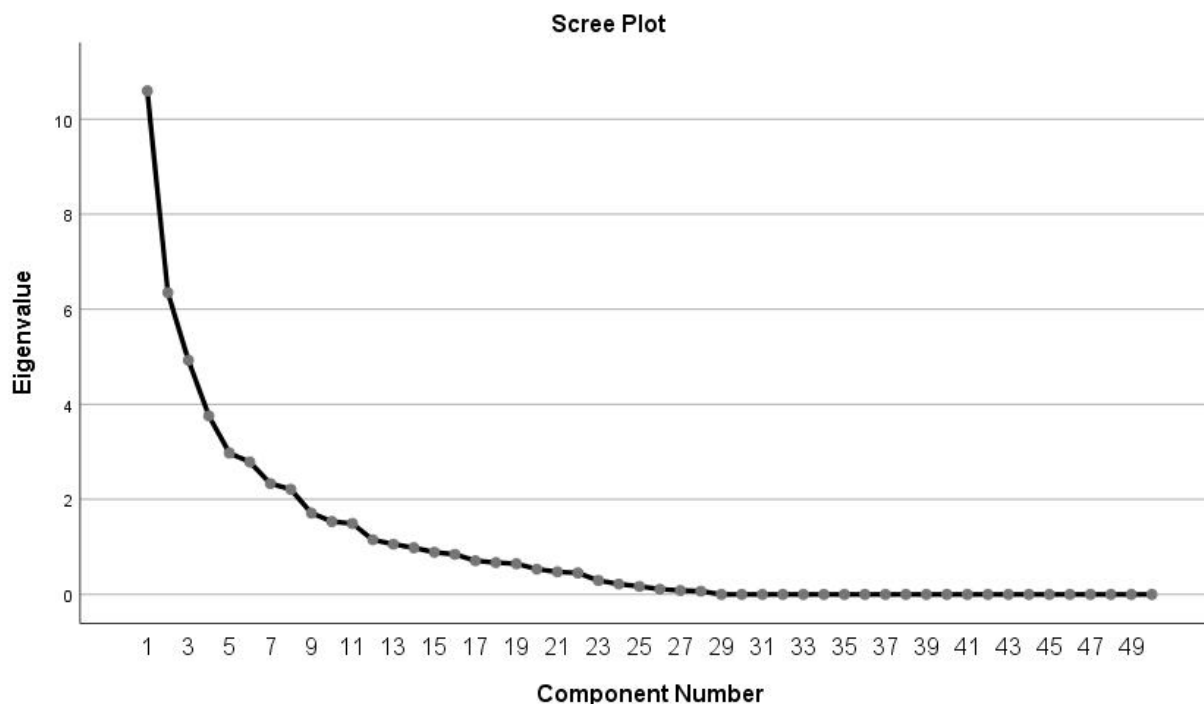


Figure 8: Scree Plot of Eigenvalue for 2020 NABTCE Biology Multiple Choice Test

Presentation of Results

Research Question 1: What is the level of Aberrant examinees in the candidates of the NABTCE 2018 Biology Multiple Choice test examination?

Table 3: Distribution of Aberrant Examinees of the NABTCE 2018 Biology Multiple Choice items

Status	Frequency	Percent
Aberrant	714	10.1
Non Aberrant	6372	89.9
Total	7086	100.0

Table 3 represent the distribution of examinees who sat for NABTCE 2018 Biology Multiple Choice test. The study sample consisted of 7086 examinees for the 2018 Biology NABTCE. Aberrant examinees were determined using a cutoff value of 0.25. Examinee whose

HT coefficient was less than 0.25 were flagged as aberrant. The table above shows that 714 examines representing 10.1% were classified as aberrant, while 6372 representing 89.9% of examinees were classified as non aberrant. This implies that the level of aberrant examinees is moderate.

Research Question 2: What is the level of Aberrant examinees in the candidates of the NABTCE 2019 Biology Multiple Choice test examination?

Table 4: Distribution of Aberrant Examinees for the NABTCE 2019 Biology Multiple Choice item

Status	Frequency	Percent
Aberrant	858	12.9
Non Aberrant	5589	87.1
Total	6447	100.0

Table 4 represent the distribution of examinees who sat for NABTCE 2019 Biology Multiple Choice test. The study sample consisted of 6447 examinees for the 2019 Biology NABTCE. Aberrant examinees were determined using a cutoff value of 0.15. Examinee whose HT coefficient was less than 0.15 were flagged as aberrant. The table above shows that 858 examines representing 12.9%were classified as aberrant, while 5889 representing 87.1% of examinees were classified as non aberrant. This also implies that the level of aberrant examinees is moderate.

Research Question 3: What is the level of Aberrant examinees in the candidates of the NABTCE 2020 Biology Multiple Choice test examination?

Table 5: Distribution of Aberrant Examinees for the NABTCE 2020 Biology Multiple Choice items

	Frequency	Percent
Tatus		
Aberrant	386	4.5
Non Aberrant	6344	95.5
Total	6730	100.0

Table 5 represent the distribution of examinees who sat for NABTCE 2020 Biology Multiple Choice test. The study sample consisted of 6730 examinees for the 2020 Biology NABTCE. Aberrant examinees were determined using a cutoff value of 0.31. Examinee whose HT coefficient was less than 0.31 were flagged as aberrant. The table above shows that 386 examines representing 4.5% were classified as aberrant, while 6344 representing 95.5% of examinees were classified as non-aberrant. The implication of this result is that there is low level of examinees who responded aberrantly.

Research Question 4: What is the Internal Consistency Reliability of the NABTCE 2018 Multiple Choice Test Items before and after Screening the Data of Aberrant Examinees?

Table 6: Cronbach Alpha Coefficient before and after Screening the Data of NABTCE 2018 Biology Multiple Choice Items

Before Screening		After Screening	
Cronbach's Alpha	No. of Items	Cronbach's Alpha	No. of Items
.775	50	.795	50

The internal consistency reliability of the instrument was established firstly using the sample containing both the aberrant and non aberrant examinees (7086 Biology examinees) and secondly using only the non aberrant examinees (6372). The data were analysed using

Cronbach's alpha statistics and it yielded a reliability coefficient of .775 and .795 respectively. This implies that the internal consistency of the items is good and acceptable, although with a slight increment in the non aberrant sample.

Research Question 5: What is the Internal Consistency Reliability of the NABTCE 2019 Multiple Choice Test Items before and after Screening the Data of Aberrant Examinees?

Table 7: Cronbach Alpha Coefficient before and Screening the Data of NABTCE 2019 Biology Multiple Choice Items

Before Screening		After Screening	
Cronbach's Alpha	No. of Items	Cronbach's Alpha	No. of Items
.803	50	.813	50

The internal consistency reliability of the instrument was established firstly using the sample containing both the aberrant and non-aberrant examinees (6447 Biology examinees) and secondly using only the non-aberrant examinees (5589). The data were analysed using Cronbach's alpha statistics and it yielded a reliability coefficient of .803 and .813 respectively. This implies that the internal consistency of the items is good and acceptable, although with a better improvement in the non-aberrant sample.

Research Question 6: What is the Internal Consistency Reliability of the NABTCE 2020 Multiple Choice Test Items before and after Screening the Data of Aberrant Examinees?

Table 8: Cronbach Alpha Coefficient before and after Screening the Data of NABTCE 2020 Biology Multiple Choice Items

Before Screening		After Screening	
Cronbach's Alpha	No. of Items	Cronbach's Alpha	No. of Items
.733	50	.769	50

The internal consistency reliability of the instrument was established firstly using the sample containing both the aberrant and non aberrant examinees (6730 Biology examinees) and secondly using only the non aberrant examinees (6344). The data were analysed using

Cronbach's alpha statistics and it yielded a reliability coefficient of .733 and .769 respectively. This implies that the internal consistency of the items is good and acceptable, although with the non-aberrant sample having a slight improvement with a value of 0.04.

Hypothesis 1: There is no significant difference between the non-aberrant examinees and the aberrant examinees of the NABTCE 2018 Biology multiple choice test examination.

Table 9: Chi-Square test of Goodness of fit

	Status
Chi-Square	4.514 ^a
Df	1
Asymp. Sig	.000

Table 12 shows a Chi-Square value of 4.514 and a p value of .000. Testing at an alpha value of 0.05, the p value is less than the alpha value so the null hypothesis which states that there is no significant difference between the non-aberrant examinees and the aberrant examinees of the NABTCE 2018 Biology multiple choice test examination is rejected. Consequently there is a significant difference between the non-aberrant examinees and the aberrant examinees of the NABTCE 2018 Biology multiple choice test examination.

Hypothesis 2: There is no significant difference between the non aberrant examinees and the aberrant examinees of the NABTCE 2019 Biology multiple choice test examination.

Table 10: Chi-Square test of Goodness of fit

	Status
Chi-Square	3.472 ^a
Df	1
Asymp. Sig	.000

Table 13 shows a Chi-Square value of 3.472 and a p value of .000. Testing at an alpha value of 0.05, the p value is less than the alpha value so the null hypothesis which states that there is no significant difference between the non aberrant examinees and the aberrant examinees of the NABTCE 2019 Biology multiple choice test examination is rejected. Consequently there is a significant difference between the non aberrant examinees and the aberrant examinees of the NABTCE 2019 Biology multiple choice test examination.

Hypothesis 3: There is no significant difference between the non aberrant examinees and the aberrant examinees of the NABTCE 2020 Biology multiple choice test examination

Table 11: Chi-Square test of Goodness of fit

	Status
Chi-Square	5.275 ^a
Df	1
Asymp. Sig	.000

Table 14 shows a Chi-Square value of 5.275 and a p value of .000. Testing at an alpha value of 0.05, the p value is less than the alpha value so the null hypothesis which states that there is no significant difference between the non aberrant examinees and the aberrant examinees of the NABTCE 2020 Biology multiple choice test examination is rejected. Consequently there is a significant difference between the non aberrant examinees and the aberrant examinees of the NABTCE 2020 Biology multiple choice test examination.

Discussion of Findings

Research questions one, two and three addressed the level of aberrant examinees' using data from 2018, 2019 and 2020. The Perfit statistics significantly and moderately distinguished between aberrant and non-aberrant examinees. The findings revealed that there is a low

percentage of aberrant examinees among those who sat for the NABTCE 2018, 2019 and 2020 Biology multiple choice test examinations. The reason for this could be because every examinee would ensure that he or she respond to the items as accurate as possible. However the result from 2019 NABTCE Biology multiple choice test revealed the highest level of aberrant examinees. The reason for this high increase may be due to the effects of Covid 19 pandemic, when all schools were shut down to reduce the risk of the spread of the disease, and so probably students were not so much serious with their academic work. The results of this findings collaborated with the findings of Schneider et al (2018) in their study on Careless Responding in Internet-based Quality of Life Assessment. The researchers used the Patient Reported Outcomes Measurement Information System questionnaire, out of which 148 participants were classified as careless responders from the entire sample of 2000. This study is also in line with the study conducted by Arias, et al (2020) in a study on A Little Garbage in, Lots of Garbage out, in Assessing the Impact of Careless responders in Personality Survey. The result of the study showed that the factor mixture model detected inconsistencies of response to items with different semantic polarity identified between 4.4% to 10% of careless or insufficient effort respondents. Although the result of Oluwatimilehin (2021), who in her study on Aberrant Response Behavior in Mathematics Test Among Secondary School Students, revealed a high percentage of examinees who responded aberrantly. 91.7% representing 1552 students were considered to be aberrant responders while 140 students were non-aberrant.

Based on the collective results, the researcher agrees that survey data set contains some levels of response patterns. Although of varying levels, which may be as a result of intrinsic and extrinsic factors that may affect the examinee in the course of testing. This result supports the IRT three parameter logistic model and the four parameter logistic models with the theoretical

claim of examinees whose response patterns are incongruence due to guessing or slipping factors which is termed the “c” and “d” parameter respectively.

The implication of this finding is that some examinees when responding to survey items especially in large scale items can produce responses that are not their true ability match. The pattern of responses produced may boost their performances without increase in ability or may decrease their performance without a decrease in ability. In whichever case aberrancy is presented, performance is affected and the psychometric properties of the scale or the purpose for which the scale was developed may be affected. Also that aberrancy can be estimated using Perfit statistic of the non-parametric IRT.

Research questions four, five and six indicated that there is no statistical differences in the reliabilities before and after screening the data of those who responded aberrantly. The differences in the reliabilities before and after screening the data were not up to .1, hence no significant statistical difference. The result of this study may have appeared this way, since the levels of those who responded aberrantly were moderate for 2018 and 2019, and low for 2020. The findings of this study also aligns with that of Schneider et al (2018) in their study on Careless Responding in Internet-based Quality of Life Assessment. Part of their findings was that there was no substantial differences in the reliability of PROMIS measures between careless and non-careless respondents. This was also supported by the work done by Kam (2019) on Careless Responding threatens factorial analysis results and construct validity of personality measure. They stated that the claims made by some researcher that, careless responding distort factor loading pattern and may also threaten convergent validity received limited support. This study is contrary with the study conducted by Maraci, Wall and Brewer (2019), who studied to observe if participant carelessness is a substantial problem that significantly influences or biases the results

of statistical analysis. In their findings, they suggested that the individual reliability and the RIR approaches were not entirely fundamentally similar. Also, Arias, et al (2020) carried out a study on A Little Garbage in, Lots of Garbage out in Assessing the Impact of Careless responders in Personality Survey. Their findings was that it raised serious doubts about the dimensionality and internal structure of the data and reduced the reliability with which the trait scores of the survey are estimated.

The implication of this study is that aberrant respondents have a very small impact on the internal consistency reliability. Based on this findings, the researcher agreed that the reliabilities of the data before and after screening the data set of aberrant examinees for 2018, 2019 and 2020 NABTCE Biology multiple choice items are statistically similar.

Hypothesis one, two and three addressed the differences between the non aberrant examinees and the aberrant examinees for the 2018, 2019 and 2020 NABTCE Biology. The results for the 2018, 2019 and 2020 indicated that there is a significant difference between the aberrant examinees and the non aberrant examinees for the NABTCE Biology multiple choice test items spread across the years. The result from testing these hypotheses may have appeared this way because of the pattern of responses between the aberrant examinees and the non aberrant examinees for those who sat for the NABTCE Biology multiple choice test examinations for the three years, and also because the number of those who responded aberrantly compared to those whose responses were non aberrant are greatly different. To support this result is the findings of Maraci, Wall and Brewer (2019) who showed that there were two significant differences between the full and careful samples. In support of this view, is the findings of Schneider et al (2018) who found out that careless responding meaningfully and significantly affected the correlations in Quality of Life (QoL) between medical and disabled groups. This

was not so in the findings of Hormann and Schudlik (2021) who concluded that the differences were negligible with a proof of data quality. This was not in agreement with this study because a secondary data were used. This may be one of the reason why the results were contrary.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the summary of the study, conclusion and recommendations as well as suggestions for further studies are presented.

Summary

The study was carried out to empirically determine the aberrant examinees of 2018, 2019 and 2020 May/June Biology multiple choice test items of the National Business and Technical Certificate Examinations in Nigeria. To achieve the aim of this study, nine (9) research questions were raised and three (3) hypotheses were formulated. Relevant literature were reviewed. The survey ex-post facto research design was adopted in the study. The population of the study was 88786 comprised of twenty eight thousand, one hundred and twenty-one (28121), twenty-nine thousand two hundred and fifty-four, (29254) and thirty-one thousand four hundred and eleven (31411) responses of examinees that sat for the May/June NABTCE Biology multiple choice items in 2018, 2019 and 2020 in Nigeria respectively. A sample size of 20263 examinees' responses sampled out of the entire responses of 2018 (7086), 2019 (6447) and 2020 (6730).

The aberrant examinees were identified using the Perfit Statistics developed by Sijtsma, 1986. This statistics employs a bootstrap resampling procedure for estimating the cut off values for 2018, 2019 and 2020 based on the respective generated responses. Examinees whose HT values were less than the estimated cutoff value were flagged as aberrant. A sample with percentage of aberrancy of $\leq 5\%$ was classified as low level, moderate level 6% - 15% and high level 16% - 25%. Cronbach alpha reliability was used to test for the internal consistency reliabilities before and after screening the data of aberrant examinees. Chi-Square test of goodness of fit was used to

determine the differences between the non aberrant and the aberrant examinees. All hypotheses were tested at an alpha level of 0.05.

Findings

From the analyzed data, the following findings were observed.

1. The 2018 and 2019 NABTCE Biology multiple choice test examination contained moderate levels of aberrant examinees.
2. The 2020 NABTCE Biology multiple choice test examination contained low level of aberrant examinees.
3. There is no significant differences in the item to scale correlation before and after screening the data of aberrant examinees for the 2018, 2019 and 2020 NABTCE Biology multiple choice test.
4. There was a significant differences between the aberrant and the non aberrant examinees for the 2018, 2019 and 2020 NABTCE Biology multiple choice test.

Conclusion

Based on the research findings, the researcher concludes that the 2018 and 2019 NABTCE Biology multiple choice test contained aberrant examinees in moderate levels and therefore may lead to invalidation of psychometric properties. However that of 2020 NABTCE Biology multiple choice test contained aberrant examinees in a low level, and as such may not have as much impact in the psychometric properties of the items, when compared to the data set of 2018 and 2019 NABTCE Biology multiple choice test. This study also concludes that the internal consistency reliabilities obtained before and after screening the National Business and Technical Certificate Examination (NABTCE) Biology multiple choice test of aberrant examinees had close values, with the reliabilities after screening the data of aberrant examinees

responses, having a slight improvement over the reliabilities before screening. Also with respect to comparing the differences that existed between the aberrant and non aberrant samples of the National Business and Technical Certificate Examination (NABTCE) Biology multiple choice items for 2018, 2019 and 2020, there was a significant differences between the aberrant and the non aberrant examinees.

Recommendations

Based on the findings and conclusion reached in this study, the researcher therefore recommends as follows;

1. That the National Business and Technical Examination Board has credit for constructing Biology multiple choice items for 2018, 2019 and 2020 that have low and moderate aberrant examinees
2. The study has proved the occurrences of aberrant examinees responses in survey test, psychometricians, test researchers and counsellors should be aware of this fact because its impact may be strong enough to cause misclassification of ability or construct.
3. Students should be well informed about the implications responding aberrantly to testing can impact on them as well as the Nation at large .
4. Teachers should also educate their students from time to time on the dangers of responding aberrantly, so that with constant reminders examinees may gradually put off such practices.
5. School Counsellors should also counsel their counselee about the effects of responding aberrantly when being diagnosed so as not to administer the wrong drug or therapies.
6. That aberrant examinees' responses in a data set may affect the internal consistency of the item and test correlation.

Contributions to Knowledge

This study has contributed to knowledge in the following ways;

- It has provided empirical evidence that some examinees respond aberrantly during an examination.
- It provided knowledge on the fact that been an aberrant examinee can lead to misclassification of ability
- It contributed to literature by providing a reference point to future researchers who would want to research on the area of mis fitting responses, carelessness or aberrant responses.

Suggestion for Further Studies

Empirical investigation on aberrant examinees has not gained much grounds in the developing world. It is the desire of the researcher that more research work should be carried out such as;

- i. Determination of aberrant examinees in a web-based questionnaire
- ii. Comparison of Person fit statistics using parametric and non parametric IRT fit statistics.
- iii. Comparison of aberrant examinees in WAEC NECO and NABTEB in Mathematics Objective test items

REFERENCES

- Abanobi, C. C. (2013). Psychometric Properties of National Business and Technical Examination Board Economics Multiple Choice Test Items from 2005 to 2009 (Unpublished Master's Thesis): Nnamdi Azikiwe University, Awka.
- Aborisade, O. J. & Fajobi, O. O. (2020). Comparative Analysis of Psychometric Properties of Mathematics Items Constructed by WAEC and NECO in Nigeria using IRT Approach. *Educational Research and Reviews*, 15 (1), 1-7. <http://www.academicjournals.org/ERR>.
- Adedoyin, O. O. & Mokobi, T. (2013). Using Item Response Theory Psychometric Analysis in Examining the Quality of Junior Certificate Mathematics Multiple Choice Examination Test Items. *International Journal of Asian Social Sciences*, 3 (4), 992-1011.
- Ainsworth, A. (2015). Introduction to Item Response Theory. Psy 427 Cal State Northridge, from http://www.esun.edu/ata20315/psy427/Topic08_IntroIRT.ppt.
- Akinjide, A. (2018). The Status of Biology in Nigeria Secondary School Curriculum: Implications for Scientific Literate Society. Doi: 10.13140/RG.2.2.26487,68005
- Amarnani, R. (2009). Two Theories: A Gentle Introduction to Item Response Theory as an Alternative to Classical Test Theory. *The International Journal of Educational and Psychological Assessment* (3), 104-109.
- Amasingha, K. J. (2015). Item Response Theory. The way Forward to Objectivity in Educational Measurement in the School System. *Nigerian Journal of Educational Research and Evaluation*, (14), 2-17.
- American Educational Research Association, American Psychological Association and National Council on Measurement in Education (AERA, APA and NCME) (2014). Standards for Educational and Psychological Test and Manuals. Washinton DC: American Psychological Association.
- Anderson, E. B. (1972). The Numerical Solution to a set of Conditional Estimation Equations. *Journal of the Royal Statistical Society*, (34), 42-52.
- Anikweze, C. M. (2010). Measurement and Evaluation for Teacher Education. (2nd ed) Enugu: SNAAP Press (Nig) Ltd.
- Antoniou, F., Alkhadim, G. Mouzaki, A. & Simos, P. (2022). A Psychometric Analysis of Raven's Coloured Progressive Matrices: Evaluating Guessing and Carelessness . Using the Four Parameter Logistic Item Response Theory Model. *Journal of Intelligence*, 10(6),1-14. <https://doi.org/10.3390/jintelligence10010006>.
- Arias, V. B. Garrido, L. E., Jenaro, C., Martinez-Molina, A. & Arias, B. (2020). A Little Garbage in, Lots of Garbage out: Assessing the Impact of Careless Responding in Personality Survey Data. Behaviour Research Methods. Advanced Online Publication <https://doi.org/10.3758/s13428-020-01401-8>.

- Avcu, A. (2021). Impact of Aberrant Responses on Item Response Theory-Based Model Estimations. *Kastamonu Education Journal*, 29(5), 1024-1033.
- Ayanwale, M. A. (2017). Efficacy of Item Response Theory in Score Ranking and Concurrent Validity of Dichotomous and Polytomous Response Mathematics Achievement Test in Osun State, Nigeria. Unpublished Doctoral Dissertation. Institute of Education. University of Ibadan.
- Basit, Q. A., Rashid, H. A. & Rehman, H. (2020). Aberrant Behaviour of Employees at Workplace: Conceivable Reasons, Effects and Remedies in Teaching of Qua'ran. *Journal of Islamic Thoughts and Civilization* 10 (1), 311-331
- Bonette, D. G., Wright, T. A. (2015). Cronbach's Alpha Reliability. Internal Estimation, Hypothesis Testing and Sample Size Planning. *J. Organ Behav.* 36 (1), 3-15
- Bowling, A., Slavet, J., Muller, D. P., Beardslee, S. H. W. & Davison, K. (2017). Cybercycling Effects on Classroom Behaviour in Children with Behavioural Health Disorders: *Pediatrics* 139 (2)
- Bowling, N., Huang, J. L., Bragg, C. & Khazon S. (2016). Who Cares and Who is Careless? Insufficient Effort Responding as a Reflection of Respondent Personality. *Journal of Personality and Social Psychology* 3 (2.). <https://doi.org/10.1037/pspp0000085>.
- Burns, G., Morris, M. Periad, D. A. & Lahuis, D. (2017). Criterion-related Validity of a big Five General Factor of Personality from the TIPI to the IPIP: *International Journal of Selection and Assessment* 25 (3), 213-222. <https://doi.org/10.1111/ijsa.12174>.
- Chakrabartty, S. N. (2013). Best Split Half and Maximum Reliability. *IOSR Journal of Research and Methods in Education* 3 (1), 1-8
- Chalmers, R. P. (2012). Mirt: A Multidimensional Item Response Theory Package for the R Environment. *Journal of Statistical Software* 48 (6), 1-29. <http://www.jstatsoft.org/v48/i06>
- Cheng Y. & Liu C (2005). The Effect of Upper and Lower Asymptotes Item Response Theory (IRT) Models on Computerized Adaptive Testing. *Applied Psychological Measurement* 39 (7), 551-565. Published on line 2015 May 21 doi.10. 177/0146621615585850
- Cheng, Y. Liu, C. & Behrens, J. (2015) Standard Error of Ability Estimates and the Classification Accuracy and Consistency of Binary Decisions in Linear and Adaptive testing. *Psychometrika* 80 (3), 645-664. <http://doi: 10.1007/s11336-014-9407-z>.
- Chiu, T. & Camilli, G. (2013). Comments on Three Parameter Logistic Item Response Theory Adjustment for Guessing. *Applied Psychological Measurement* 37(1), 76-86. <https://doi.org/10.1177/0146621612459369>.

- Clark, J., M. (2010). Aberrant Response Patterns as a Multidimensional Phenomenon: Using Factor Analysis Model Comparison to Detect Cheating: (Unpublished Doctoral Dissertation): University of Kansas, Lawrence.
- Coniam, D., Lee, T. & Lampropoulou K. (2021). Identifying Guessing in English Language Test via Rasch fit Statistics: An Exploratory Study. *English Language Teaching* 14 (5) 23-
- Curran, P. G. (2018). Methods for Detection of Careless Invalid Responses in Survey Data. *Journal of Experimental Social Psychology*. (66), 4-19. <https://doi.org/10.1016/j.jesp.2015.07.006>.
- Dardouri, W., Gharbi, Z., Selmi, M. A. Sassi, R. H., Moalla, W. & Chamari, K. (2014). Reliability and Validity of a new Maximal Anaerobic Shuttle Running Test. *International Journal of Sports Medicine* 35(4),310-315.
- De Ayala, R. J. (2009). *The Theory and Practice of Item Response Theory*: New York: The Guilford Press.
- DeMars C. (2010). *Item Response Theory: Understanding Statistical Measurement*. Oxford University Press Inc. New York Cape Town
- DeMars, C. (2018). *Item Information Function*: In B. B. Frey (Ed) 2018. The SAGE Encyclopedia of Educational Research, Measurement and Evaluation, Sage Publications.
- DeSimone, J. A. & Harms, P. (2018). Dirty Data: The Effects of Screening Respondents who Provide Low-quality Data in Survey Research. *Journal of Business and Psychology*, 33 (5), 559-577. <https://doi.org/10.1007/s10869-017-9514-9>
- DeVillis, R. F. (2012). *Theory and Applications, Volume 26*. Thousand Oaks, CA: Sage Publications
- Do, H. (2021). Parameter Recovery for the Four Parameter Unidimensional Binary IRT Model: A Comparison of Marginal MaximumLikelihood and Markov Chain Monte Carlo Approaches. (Doctoral Dissertation) Gladys W. and David H. Patton College of Education of Ohio University,
- Drost, E. A. (2011). Validity and Reliability in Social Science Research. *Educational Research and Prospectives* 38 (1), 105-124
- Dunn, A. M. Heggedad, E. D. Sharock, L. R. & Theilgard N. (2018). Intra-individual Response Variability as an Indicator of Insufficient Effort Responding: Comparison to other Indicators and Relationships with Individual Differences. *Journal of Business and Psychology*, 33 (1) 105-121
- Eboh, E. C. (2009). Social and Economic Research. Principles and Methods (2nd Ed). Enugu: Afican Institute for Applied Economics

- El Hajjar, T. S. (2018). Statistical Analysis: Internal Consistency Reliability and Construct Validity. *International Journal of Quantitative and Qualitative Research Methods* 6(1), 27-38
- Embretson, S. e. & Reise, S. P. (2000). *Item Response Theory for Psychologists*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Engel, R. J. and Schutt, R. K. (2013). Measurement. *The Practice Research in Social Work* (3rd ed)). Sage Publication Inc. 97-104 https://www.sagepub.com/sites/default/files/upm-binaries/45955_chapter_4.dpf
- Eze, D. N.(2013). Science without Women: A Paradox 75th Inaugural Lecture of the University of Nigeria, delivered on 30th May, Nsukka. University of Nigeria Senate Ceremonials Committee.,
- Fayers, P. M. & Machin, D. (2016). Quality of Life, Assessment Analysis and Interpretation. The Assessment Analysis and Interpretation of Patient Reported Outcome. 2nd Ed. Chichester: John Wiley and Sons
- Federal Republic of Nigeria (2013). National Policy on Education (6th Ed), Lagos; NERDC Press
- Fleischer, A. Maud, A. D. & Huang I. (2015). Inattentive Responding in MTurk and
- Flintermann, B. (2014). The Quality of Maeket Research Reports: The Case of Market Line Advantage and the Authomobile Industry, <https://doi.org/10.1037/a0038510>
- Fraenkel, J. r., Hyun, H. H., & Wallen, N. E. (2012). How to Design and Evaluate Research in Education (8th Ed). New York: McGraw Hill
- Funk, J. L. & Rogge, R. D. (2007). Testing the Ruler with Item Response Theory: Increasing Precision of Measurement for Relationship Satisfaction Index. *Journal of Family Psychology* (21) 572-583. <https://doi.org/10.1037/0893.3200.21.4572>
- Gajjar, S., Sharma, R., Kumar, P. & Rana, M. (2014). Item and Test Analysis to Identify Quality Multiple Choice Questions (MCQS) from an Assessment of Medical Students of Ahmedabad, Gujarat. *Indian Journal of Community Medicine*. 39 (1), 17 <https://doi.org/10.4103/0970-0218.126347>
- Ghazali, N. H. M. (2016) A Reliability and Validity of an Instrument to Evaluate the School-Based Assessment System: *International Journal of Evaluation and Research in Education (IJERE)* 5 (2), 148-157. Retrieved from <http://iaesjournal.com/online/index.php/IJERE>
- Hambleton, R. K. (1994). Item Response Theory: A Broad Psychometric Framework for measurement Advances, *Psicothema*, 6 (3), 535-556
- He, Q., Meadoes, M. & Black, B. (2018) Statistical Techniques for Studying Anomaly in Test Results: A review of Literature ofqual/18/6355/5

- Heale, R. & Twycross, A. (2015). A Validity and Reliability in Quantitative Studies. *Evid Based Nurs* 18 (3), 66-70
- Henseler, J., Ringle, C. M. & Sarstedt, M. (2014). A new Criterion for Assessing Discriminant Validity in Variance-Based Structural Equation Modelling. *Journal of the Academy of Marketing Science*, 43 (1), 115-135
- Hong, M., Steedle, J. T. & Cheng, Y. (2020). Methods of Detecting Insufficient Effort Responding: Comparison and Practical Recommendations. *Educational and Psychological Measurement*, 80 (2), 312-345. <https://doi.org/10.1177/0013164419865316>
- Hormann, H. & Schudlik, K. (2021). Identification and Compensation of Aberrant Response Patterns. Quality of Comfort Assessments in Human Subject Trials. Issn 1434-8454 ISRN DLR-FB-2021-05 German Aerospace Center (DLR) Institute of Aerospace Medicine Hamburg/ Germany
- Huang, J. L., Curran, P. G., Keeney, J. Poposki, E. M. & DeShon, R. P. (2012). Detecting and Detering Insufficient Effort Responding to Surveys. *Journal of Business and Psychology*, 27 (1), 99-114. <https://doi.org/10.1007/s10869-011-9231-8>
- Ifeakor, A. C. (2011). *Psychological Measurement and Evaluation in Education: Issues and Application*. Onisha: Folmech Printing and Publishing co, ltd
- Jai, B., Zang, X. & Zhu, Z. (2019). A Short note on Aberrant Response Bias in Item Response Theory. *Frontiers in Psychology*, Edited by Holmes Finch. [https://doi:10.3389/fpsyg.2019.00043](https://doi.org/10.3389/fpsyg.2019.00043) www.frontiersin.org.
- Johnson, M. S. (2007). Marginal Maximum Likelihood Estimation of Item Response Models in R. *Journal of Statistical Software*, (20) 10-25 . <http://www.jstat-soft.org/>
- Kam, C. C. S. (2019). Careless Responding Threatens Factorial Analytic Results and Construct Validity of Personality Measures. *Frontiers in Psychology*, (1258) 1-10. Doi:10.3389/fpsyg.2019.01258
- Karl L., Wuensch, (2012). A Brief Introduction to Reliability, Validity and Scalling. Reliability-Validity-Scalling.Docx.<http://www.core.ecu.edu/psyc/.../Reliability-Validity-Scalling.docx>
- Kountur, R. (2016). Detecting Caerless Responses to Self -Reported *Questionnaire.Eurasian Journal of Educational Research*, 64 307-318
- Korb, K. (2012). Conducting Educational Research Validity of Instrument <http://korbedpsych.com/R09evalidity.html>
- Le, D. T. (2013). Applying Item Response Theory Model in Educational Research. Doctoral Dissertation, IOWA State University.

<https://search.proquest.com/pqdtglobal/docview/1450045295/DD5A94235C534A49PQ/1?accountid=8319>

- Liao, w. Ho, R. yen y .&cheng H. (2012). The four parameter logistic IRT model as a robust method of estimating ability despite aberrant response; *An International Journal of Social Behaviour and Personality*, 40(10), 1679-1694. <http://dx.doi.org/10.2224/sbp.2012.40.10.1697>
- Linacre, J. M. (1987). Estimation: Iteration and Convergence. *Research Measurement Transactions*, (18), 15-21
- Lobindo-wood, G. and Haber, J. (2013). *Nursing Research: Methods and Critical Appraiser for Evidence Best Practice 98th ed*. St Louis, Missouri: Elsevier and Mosby Publications.
- Loken, E. & Rulison K. (2010). Estimation of a four Parameter Item Response Theory Model. *British Journal of Mathematical and Statistical Psychology*, (63), 509-525. <http://doi.org/b2scfn>
- Madan, C. R. & Kensinger, E. A. (2017). Test Re-test Reliability of Brain Morphology Estimates. *Brain Informatics*, (4), 107-121
- Magis, D. (2013). A note on the Item Information Function of the four Parameter Logistic Model. *Applied Psychological Measurement*, 37 (4), 304-315
- Mahmud, J. (2017). Item Response Theory: A Basic Concept. *Educational Research and Reviews*, 12(5), 258-266. <http://academicjournals.org/journal/ERR>
- Makalesi, A. (2021). Impact of Aberrant Responses on Item Response-Based Model Estimations. *Kastamonu Education Journal*, 29 (5), 1024-1033. Doi: 10.24106/kefdergi.836241
- Mallikarjuna, G. & Natarajan V. (2012). Investigation into Invariance Properties of Item Response Theory (IRT) by Two and Three Parameter Models: *International Journal of Information Technology and Business Management*, 1 (1), 28-34
- Maniaci, M. R., & Rogge, R. D. (2014). Caring About Carelessness. Participant Inattention and its Effects on Research. *Journal of Research in Personality*, 48(14), 61-83
- Marasi, S., Wall, A. & Brewer, K. (2019). Participant Carelessness: Is it a Substantial Problem with Survey Data? *The Electronic Journal of Business Research Methods*, 17(1), 1-16 www.ejbrm.com
- McBrien, S. (2018). Effects of Structural Flaws on the Psychometric Properties of Multiple Choice Questions
- McGrath, R. E. Mitchell, M., Kim, B. H. & Hough, I. (2010). Evidence for Response Bias as a Source of Error Variance in Applied Assessment. *Psychological Bulletin* 136 (3), 450-470. Retrieved from <https://doi.org/10.1037/a.0019216>

- McNeish, D. (2019). A Comparison of Classical and Modern Measures of Internal Consistency. *Front Psychol* 10 doi:103389/fpsyg.2019.02714
- Meade, A. W., & Craig, B. (2012). Identifying careless responses in survey data. *Psychological Methods*, 17(3), 437-455 doi:10.1037/a0028085
- Meade, A. W., Allred, C. M., Pappalardo, G. & Stoughton, J. W. (2017). Careless Responses and Attrition as sources of Bias in Online Survey Assessments of Personality Traits and Performance. *Computers in Human Behaviour*, (76) 417-430. Retrieved from <https://doi.org/10.1016/j.chb.2017.06.032>
- Meijer, R. R. & Tendeiro, J. N. (2014). The use of person-fit scores in high-stakes educational testing; how to use them and what they tell us (tech. rep. no. 14-03) Law School Admission Council, Research Report.
- Meng, X., Xu, G., Zang, J. & Tao, J. (2019). Marginalized Maximum a Posteriori Estimation for the Four Parameter Logistic Model Under a Mixture Modelling Frame work. *British Journal of Mathematical and Statistical Psychology*, <https://doi.org/10.1111/bmsp.12185>
- Millsap, R. (2008). Item Response Theory: An Introduction to the general Theory and its Applications. *Workshop Presented at the Summer Statistics Workshops at Texas A and M University, College of Education and Human Development, College Station, TX.*
- Mislevy, R. J. (1986) Bayes Modal Estimation in Item Response Models. *Psychometrika* (51), 177-195
- Mokken, R. J. (1997). Non Parametric Models for Dichotomous Response. W. J. Vander Linder & R. K. Hambleton (Eds) *Handbook of Modern Item Response Theory*. New York: Springer
- Morizot, J., Ainsworth, A. T. & Reise, S. P. (2017). Towards Modern Psychometrics: Application of Item Response Models in Personality Research. In Robbins, R. W., Fraley . R. C & Krueger R. F. (Eds). *Handbook of Research Methods in Personality Psychology* 407-423. The Guilford Press.
- Mousavi, A. Tendeiro, J. N. & Younesi, J. (2016) Person Fit Assessment Using Perfit Package in R. *The Quantitative Methods for Psychology* 12, (3) 232-241
- Mousavi, A. & Cui, A. (2020) The Effect of Person Misfit on item Parameter Estimation and Classification Accuracy: A Simulation Study. *Educ Sci* doi: 10.3370/educsci10110324
- Moyinoluwa, T. D. (2015). Analyzing the Psychometric Properties of Mathematics in Public Examinations in Nigeria. *The International Journal of Science and Tecnology* 3 (4), 286-289
- Nawi, F. A. M., Tambi, A. M. Samat, M. F. & Mustapha, W. M. W. (2019). A Review on the Internal Consistency of a Scale: The Empirical Example of the Influence of Human

- Capital Investment on Malcom Baldrige Quality Principles in Tvet Institutions. *Assan People Journal* 3 (1), 19-29. from <https://doi.org/10.37231/apj.2020.3.1.121>
- Nenty, H. J. (2014). From Classical Test Theory (CTT) to Item Response Theory (IRT): An Introduction to a Desirable Transition. In Afemikhe, O. A. & Adewale, J. N. (Eds). *Issues in Educational Measurement and Evaluation in Nigeria*. Institute of Education, University of Ibadan, Ibadan, Nigeria, 372-384
- Nissen, A. S. M., Meijer, R. R. & Tendeiro, J. N. (2016). Detecting Careless Respondent in Web Based Questionnaires: Which Methods to use? *Journal of Research in Personality* (63), 1-11. Retrieved from <https://doi.org/10.1016/j.jrp.2016.04.010>
- Obinne, A. D. E., (2011) Using IRT in Determining test items prone to guessing. *World Journal of Education* 2 (1), 91-95. from <https://doi.org/10.5430/wje.v2n1pq1>
- Ojerinde, D., Popoola, K., Ojo, F. & Onyencho, O.P. (2012). *Introduction of Item Response Theory. Parameters Models, Estimation and Application*. Goshen Print media Ltd.
- Oluwatimilehin, T. R. (2021). Aberrant Response Behaviour in Mathematics Test Among Secondary School Students in South Western Nigeria. (Doctorate Dissertation): Obafemi Awolowo University
- Oluwatoyo, J. (2012). Validity and Reliability Issues in Educational Research. *Journal of Educational and Social Research* (2) 391-400.
- Onyeniyi, J. O., Abiodun, A. J., Moses, L. C, Obaniro, J. K. & Osibanjo, A. O. (2016). Research Methodology with Simplified Step by Step Application of SPSS Package. Lagos Pumark Nigeria, Limited.
- Oppenheimer, D. M., Mayvis, T. & Davidenco, N. (2009). Instructional Manipulation Checks: Detecting Satisficing to Increase Statistical Power. *Journal of Experimental Social Psychology* (45), 867-872. from <https://doi.org/10.1016/j.jesp.2009.03.009>
- Orcan, O. U. F. (2021) Comparison of IRT Models with Different Guessing Parameters. *Journal of Social Sciences* (12), 82-97.
- Oribhabor, C. B. & Aituariagbon, K. E. (2020). Trend analysis of the item Fit of the WAEC Mathematics multiple choice test items using three Parameter Logistic Model. *ASSEREN Journal of Education*; 5 (1), 1-12
- Orluwene, G. & Igwe, B. N. (2016). Psychological Properties of WASSCE Questions in Civic Education. *International Journal of Psychology and Counselling* 8-15 (1), 92-115
- Oyeniyi, J. O., Abiodun, A. J., Moses, L. C., Obamiro, J. K. & Osibanjo, A. O. (2016). Research Methodology with Simplified Step-by-Step Application of SPSS Package. Lagos, Pumark Nigeria Limited

- Ozdogan, D. & Dogan N. (2018). The Effects of the Correlation of Self Assessment –Based Chance Success on Psychometric Characteristics of the Test. *Journal of Education and Instruction*, 8 (3) 567-598. <https://www.researchgate.net/publication/324832583>
- Polit, D. F., Beck, C. T. (2011) Fundamentos de Pesquisa em Enfermagem; Metodos, Avaliacao e Utilizacao 7 ed Porto Alegre: Artmed:
- Ranger, J. Schmidt, N & W (2020). The Detection of Cheating on E-Examinations in Higher Education. The Performance of several new and old Indicators. *Front Psychol* doi:10.3389/fpsyg.2020.568825
- Reeve, J. (2009). Why Teachers Adopt a Controlling Motivating Style Towards Students and how they can become more Autonomy Supportive. *Educational Psychologist* (44), 159-175. <https://doi.org/10.1080/00461520903028990>
- Rios, A. J. & Solnd J. (2022) An Investigation of Items, Examinees and Country Correlates of Rapid Guessing PISA. *International Journal of Testing* 22 (2) 1-31 doi:10.1080/15305058.2022.2036161
- Rucio, J. & Roche, B. (2012). Determining the Number of Factors to Retain in an Exploratory Factor Analysis using Comparison Data of known Factorial Structure. *Psychological Assessment* 24(2)282-292. <https://doi.org/10.1037/a0025697>
- Schneider, S., May, M. & Stone, A. A. (2018). Careless Responding in Internet-based Quality of Life Assessments. *Qual Life Res.* 27(4) 1077-1088 <https://doi.org/10.1007/s11136-017-1767-2>
- Schrodgers, U., Schmidt, C, & Gnambs, T (2022). Detecting Careless Responding in Survey Data using Stochastic Gradient Boosting. *Educ Psychological Measures* 82 (1) 29-56 doi:10.1177/00131644211004708
- Senel, S., Pehlivan, E. B. & Alatli, B. (2015). Effect of Correction-for-Guessing Formula on Psychological Characteristics of Test. *Procedia-Social and Behavioural Sciences*, (191) 925-929. Doi:10.1016/j.sbspro.2015.04.221
- Stephen, M. N. (2021). What is a Psychometric Test. [assessment.com>psychometric](https://www.assessment.com/psychometric)
- Swist, K. (2015). Item Analysis and Evaluation using a four-Parameter Logistic model. *Edukacja* 3 (134) 77-79. <http://www.researchgate.net/publication/282362930>, .
- Talento-Muller, E. & Guo, F. (2009). Guess What? Score Differences with Rapid Replies Versus Omissions on a Computerized Adaptive Test GMAC Research Report RR 409-04 www.gmac.comwww.mba.com
- Thomas, M. L. (2011). The Values of Item Response Theory in Clinical Assessment: *A review Assessment*, 18 (3) , 291-307.<http://www.ncbi.nlm.nih.gov/pubmed>

- Thorpe, G. L. & Favia, A. (2012). Data Analysis using Item Response Theory Methodology: An Introduction to Selected Programs and Applications. Psychology Faculty Scholarship, paper 20.
- Ukachi, P.A. & Ejiko, S. O. (2018) Importance of Vocational Technical Education in Present Day Nigeria Economy. *Global Scientific Journals* 6 (8) 530-534 www.globalscientificjournal.com
- Umar (2011). Cited in 'Improving Secondary School Students Achievement and Retention in Biology through Video Based Multimedia Instruction' AmosaIsiakaGambari, Ph.D: AkawoAngwalYaki Med; Eli S.Gana, Ph.D; Queen EguonoUghovwa, Med: <http://files.eric.ed.gov/fulltext/EJ1035855>
- Uzoagulu, A. E. (2011). Pratical Guide to Writing Research Projects in Tertiary Institutions (New edition) Enugu: John Jacobs Classic Publishers 32-121
- Varney, S. M., Perez, C. A., Arana, A. A. & Carey, K. B. (2018). Detecting Aberrant Opiod Behaviour in the Emergency Department: A Prospective Study using the Screener and Opiod Assessment for Patients with Pain- revised (SOAPP-R), Current Opiod Misuse Measure (COMM) and Provider Geestalk. *Internal and Emergency Medicine* 13 (8), 1239-1247. [https://doi: 10.1007/s11739-018-1804-3](https://doi.org/10.1007/s11739-018-1804-3)
- Wang, C., Xu, G. & Shang Z. (2018). Detecting Aberrant Behaviour in Preknowledge: A Comparisohn of Mixture Modelling Method and Residual Method. *Journal of Education and Behavioural Statistics*. 43 (4), 469-501. [https://doi: 10.3102/1076998618767123](https://doi.org/10.3102/1076998618767123) [http:// jebs.aera.net](http://jebs.aera.net)
- Wayne, L. D. (2014). Terrorism, Homeland Security and Risk Assessment via Research Proposal (3rd Ed) Bloomington: Xhbris, LLC.
- Welz, M. & Alfons A. (2023). I Don't Care Anymore: Identifying the onset of Careless Responding. *Econometric Institute, Erasmus School of Economics*
- West African Examination Council (WACE) (2015). Chief Examiner's Report. Lagos. NERC Press
- Wilson, J. (2010). Essentials of Business Research: A Guide to doing your Research Project, SAGE Publication.
- Wise, S. T. (2017). Rapid Guessing Behaviour: its Identification, Interpretation and Implications. *Educational Measurement. Issues and Practice*, 36 (4), 52-61
- Wood, D., Harms, P. D., Lowman, G. H. & DeSimone, J. A. (2017). Response Speed and Response Consistency as Mutually Validating Indicators of Data Quality in Online Samples. *Social Psychological and Personality Science* 8 (4), 454-464 <https://doi.org/10.1177/1948550617703168>

- Woods, J. (2017). Logistic IRT Models.
https://quantdev.ssri.psu.edu/sites/qdev/files/IRT_tutorial_FA17_2.html
- Xie, B. Davidson, J. M., Li, M. & Ko J. A. (2019) An Item Response Theory. Evaluation of a Language-independent CS1 Knowledge Assessment
- Yang, X. (2007) Methods of Identifying Individual Guessers from Item Response Data
[doi:org/10.1177/0013164406296978](https://doi.org/10.1177/0013164406296978)
- Zanon, C., Hutz, C. S., Hambleton, R.K. (2016). An Application of Item Response Theory to Psychological Test Development. *Psicologia: Reflexão e Crítica* (18) Psicol. Refl. Crit 29,18 <https://doi.org/10.1186/S41155-016-0040-x>
- Zohrabi, M. (2013). Mixed Methods Research Instruments, Validity Reliability and Reporting Findings. *Theory and Practice in Language Studies*. <https://doi.org/10.4303/tpls.3.2.254-262>

APPENDIX A

2018 NABTCE MAY/JUNE BIOLOGY MULTIPLE CHOICE QUESTIONS

1. In cellular respiration, energy is stored in form of
 - A. Solar energy
 - B. Chemical energy
 - C. ATP
 - D. ADP
2. Level of Organisation include the following except
 - A. Tissue
 - B. Organ
 - C. Multicellular
 - D. Cells
3. The living cell was first discovered by
 - A. Robert Hooke
 - B. Charles Darwin
 - C. Louis Pasteur
 - D. Jean Lamarck
4. Which of the following forms a link between living and non-living things?
 - A. Virus
 - B. Fungus
 - C. Bacterium
 - D. Flowering plants

5. In which part of a cell is the chromosome located?
 - A. Cytoplasm
 - B. Mitochondrion
 - C. Golgi body
 - D. Nucleus
6. Which of the following distinguishes a plant from an animal?
 - A. Presence of chlorophyll
 - B. Ability to live
 - C. Ability to respire
 - D. Ability to display sensitivity
7. The following are factors that affects the rate of diffusion except
 - A. Light
 - B. The state of the matter
 - C. The size of molecules
 - D. Temperature
8. The main function of the petals in flowering plants is
 - A. Attachment of the flowers to the shoot
 - B. Protection of the stigma
 - C. Secretion of nectar
 - D. Attraction of insects for pollination
9. The haploid number of chromosomes in man is
 - A. 32
 - B. 46
 - C. 23
 - D. 16

10. The following occur during photosynthesis except that
- A. Carbon dioxide is evolved
 - B. Water is split
 - C. Oxygen is given off
 - D. Energy from sunlight is absorbed
11. Rhizopus is a saprophyte because it
- A. Feeds on microscopic organisms
 - B. Absorbs nutrients from living plants
 - C. Feeds on decaying organic matter
 - D. Lives symbiotically with an algae
12. Banana is vegetatively propagated by
- A. Stem cutting
 - B. Layering
 - C. Marcoting
 - D. Suckers
13. If the eye piece of a compound microscope magnifies fifteen times and the objective lens magnifies forty times, what is the total magnification?
- A. 25 times
 - B. 55 times
 - C. 600 times
 - D. 1540 times

14. At what stage of mitosis does each sister chromatid move to opposite poles?

- A. Telophase
- B. Metaphase
- C. Prophase
- D. Anaphase

15. A microscope is an instrument used to study

- A. Large organisms
- B. The environment
- C. Weather conditions
- D. Small organisms and cells

16. In an ecosystem, green plants are referred to as

- A. Producers
- B. Decomposers
- C. Primary consumers
- D. Host

17. The unit of transmission of hereditary traits in a living organism is the

- A. Gene
- B. Trait
- C. Nucleolus
- D. Endoplasmic reticulum

18. Group instinct or social behavior is not displayed in
- A. Bees
 - B. Praying mantis
 - C. Weaver birds
 - D. Ants
19. The following characteristics are inheritable except
- A. Albinism
 - B. Sickle cell anaemia
 - C. Hemophilia
 - D. Night blindness
20. The main function of the dead organic matter in the soil is to
- A. Make the soil porous
 - B. Increase the soil acidity
 - C. Increase the soil fertility
 - D. Make the soil alkaline
21. After fertilization, the ovary of a flower
- A. Develops to fruit
 - B. Develops to seed
 - C. Withers off
 - D. Stores food

22. Osmosis is defined as the movement of
- A. Molecules aided by energy
 - B. Molecules from a region of lower concentration to a region of higher concentration
 - C. Molecules from a region of higher concentration to a region of lower concentration
 - D. Water molecules from a region of lower concentration to a region of higher concentration through a semi-permeable membrane
23. Which of these is not an aves?
- A. Pigeon
 - B. Ostrich
 - C. Bat
 - D. Dove
24. Which of the following happens to a red blood cell in isotonic solution?
- A. Becomes plasmolysed
 - B. Becomes flaccid
 - C. Becomes turgid
 - D. Remains unchanged
25. A sea anemone attaches itself to the shell of a hermit crab. This type of association is
- A. Saprophytism
 - B. Commensalism
 - C. Parasitism
 - D. Symbiosis

26. The resultant effect of large number of organisms sharing limited space and resources is
- A. Extinction
 - B. Immigration
 - C. Competition
 - D. Emigration
27. Which of these instruments can be used to perform an experiment in geotropism?
- A. Potometer
 - B. Cup anemometer
 - C. Klinostat
 - D. Kymograph
28. The thoracic vertebra differs from all other vertebrae by the possession of
- A. Long neural spine
 - B. Odontoid process
 - C. Large centrum
 - D. Transverse processes
29. Which of the following are the final products of aerobic respiration?
- A. Water, carbon dioxide and energy
 - B. Energy and carbon dioxide
 - C. Lactic acid, water and carbon dioxide
 - D. Glucose, energy and urea

Use the mammalian spermatozoa drawing above to answer questions 30-32

30. The structure that is the nucleus is

- A. i
- B. ii
- C. iv
- D. v

31. Which of the following labeled structures secretes enzymes which facilitates penetration of the egg?

- A. i
- B. ii
- C. iii
- D. iv

32. Which of the following labeled structure is similar to the locomotory structure of the euglena?

- A. ii
- B. iii
- C. iv
- D. v

33. In grass hoppers/ cockroach, digestion starts from the

- A. Crop
- B. Gizzard
- C. Oesophagus
- D. Midgut

34. The entire habit and habitat of an organism can be described as
- A. Ecological Community
 - B. Ecological factor
 - C. Biotic factor
 - D. Ecological niche
35. Hydra captures small crustaceans by means of
- A. Pseudopodia
 - B. Tentacles
 - C. Eneteron
 - D. Ectoderm
36. Which of the following processes is not due to interaction between biotic and abiotic components of the ecosystem?
- A. Condensation
 - B. Osmosis
 - C. Decomposition
 - D. Photosynthesis
37. The Tulgren's funnel is used to
- A. Measure the amount of rainfall
 - B. Extract minute soil organisms
 - C. Collect water from habitat
 - D. Measure the volume of heavy liquids

38. Which of the following is not an aquatic habitat?
- A. Pond
 - B. Salt lake
 - C. Rain forest
 - D. Marine
39. The following are the effects of over grazing except
- A. Depletion of useful fodder crops
 - B. Epidemic of cattle diseases
 - C. Increase in vegetation
 - D. Scarcity of good pasture land
40. Which of the following field of study may not yield strong evidence of evolution?
- A. Fossil
 - B. Ecology
 - C. Histology
 - D. Embryology
41. The maintenance of a constant internal environment of an organism is known as
- A. Turgidity
 - B. Diuresis
 - C. Homeostasis
 - D. Homoiothermy

42. The most sensitive part of the retina is called
- A. Blind spot
 - B. Conjunctiva
 - C. Choroid coat
 - D. Forea centralis
43. Which of the following pairs consists of gametes?
- A. Ovaries
 - B. Gametophyte and sporophyte
 - C. Ova and spermatozoa
 - D. Spores and sporangium
44. In which of the following structures will cells undergoing meiosis be seen?
- A. At the apices of root and stem
 - B. In the ovary of the flower
 - C. In the root of a seedling
 - D. In the cortex of the stem
45. A few drops of fehling solution was added to juice extracted from fresh maize grain and boiled. A red precipitate was formed, indicating the presence of
- A. Alcohol
 - B. Protein
 - C. Reducing sugar
 - D. Non-reducing sugar

46. Which of the following is not a form of asexual reproduction?
- A. Regeneration
 - B. Vegetative propagation
 - C. Budding
 - D. Conjugation
47. Which of the following is a problem facing conservation of wild life in Nigeria?
- A. Migration
 - B. Poaching
 - C. Emigration
 - D. Pollution
48. The following substances are released during the process of decomposition except
- A. Ammonia
 - B. Oxygen
 - C. Heat
 - D. Carbon dioxide
49. Which of the following plant is not found in the tropical forest floor layer?
- A. Fungi
 - B. Algae
 - C. Epiphytes
 - D. Mosses
50. Which of the following is not a macro-nutrient required by plant?
- A. Potassium
 - B. Iron
 - C. Manganese
 - D. Magnesium

APPENDIX B

2019 NABTCE MAY/JUNE BIOLOGY MULTIPLE CHOICE QUESTION

1. Bryophytes are different from spermatophytes because they
 - A. Live in moist habitat
 - B. Reproduce sexually and a sexually
 - C. Have small leaves
 - D. Have no vascular tissues
2. In spirogyra the pyrennoid
 - A. Excretes waste products
 - B. Is mainly used for respiration
 - C. Usually contains starch
 - D. Makes the plant slimy to touch
3. The most successful group of in invertebrates are
 - A. arthropods
 - B. annelids
 - C. molluscs
 - D. nematodes
4. At what level of organization of life are fungi?
 - A. Organ
 - B. Organism
 - C. System
 - D. tissue

5. Differentiation and specialization in multicellular organisms is necessary because
- A. The volume surface-area ratio of the organisms is low
 - B. It allows for division of labour in the cells
 - C. There is a definite arrangement of cells
 - D. Cells have different shapes and sizes
6. Which of these animals is radially symmetrical?
- A. Squid
 - B. Hydra
 - C. Snail
 - D. Cockroach
7. Which of the following does a virus have in common with animal cell?
- A. Nucleus
 - B. DNA
 - C. Glycogen
 - D. Cytoplasm
8. Which of the following can cause shrinkage of living cells?
- A. Isotonic solution
 - B. Deionized water
 - C. Hypertonic
 - D. Hypotonic

9. In which of the following parts of a cell is the chromosome found?
- A. Nucleus
 - B. Cytoplasm
 - C. Cell membrane
 - D. Golgi body
10. Which of the following processes occurs by diffusion?
- A. Entry of water into the cytoplasm of a unicellular animals
 - B. Absorption of water in the large intestine
 - C. Exchange of nutrients between a mother and the foetus
 - D. Movement of water in and out of living cells
11. Unicellular root hairs arise from the
- A. Cambium
 - B. Piliferous layer
 - C. Pericycle
 - D. Cortex
12. Which of the following is a physical process involving the movement of water molecules only?
- A. Diffusion
 - B. Fusion
 - C. Absorption
 - D. Osmosis

13. Which of these is not part of the appendicular skeleton?
- A. Clavicle
 - B. Vertebra column
 - C. Scapular
 - D. Femur
14. What part of the body is the hinge joint located?
- A. Ankle
 - B. Knee
 - C. Shoulder
 - D. Wrist
15. Antibodies in the mammalian blood are formed by?
- A. Platelets
 - B. Red blood corpuscles
 - C. White blood corpuscles
 - D. Endocrine glands
16. The bicuspid valve is located between the
- A. Left auricle and left ventricle
 - B. Aorta and left ventricle
 - C. Superior vena cava and inferior vena cava
 - D. Right auricle and the superior vena cava
17. In which of the following blood vessels does exchange of materials occur?
- A. Arteries
 - B. Arterioles
 - C. Capillaries
 - D. Veins

18. Heat produced in tissue respiration in plant is
- A. A chemical form of energy
 - B. The main form of energy
 - C. A useful form of energy
 - D. The only form of energy
19. A grass hopper respire by means of its
- A. Book lungs
 - B. Trachea tubes
 - C. Antenna
 - D. Lungs
20. Kreb's circle occurs in the
- A. Mitochondria
 - B. Cytoplasm
 - C. Nucleus
 - D. Ribosomes
21. The excretory product common to all insects is
- A. Water
 - B. Bile
 - C. Uric acid
 - D. Ammonia
22. Ultrafiltration in the kidney takes place in the
- A. Loop of henle
 - B. Renal vein
 - C. Bowman's capsule
 - D. Pelvis

23. In the mammalian skin, melanin and keratin are contained in the
- A. Sebaceous gland
 - B. Sweat gland
 - C. Subcutaneous layer
 - D. Malpighian layer
24. The ability of organisms to maintain a constant internal environment is known as
- A. Diuresis
 - B. Homeostasis
 - C. Dialysis
 - D. Endosmosis
25. Infective hepatitis is a disease of the
- A. Heart
 - B. Kidney
 - C. Liver
 - D. Pancreas
26. The part of the mammalian brain responsible for maintaining balance is the
- A. Medulla oblongata
 - B. Cerebellum
 - C. Optic lobe
 - D. Olfactory lobe

27. Which of the following is an effector?
- A. Spinal cord
 - B. Brain
 - C. Blood
 - D. Muscles
28. Which of the following actions is not a conditioned reflex?
- A. Walking
 - B. Blinking of eyes
 - C. Driving a vehicle
 - D. Swimming
29. The eye defect that is corrected by a diverging lens is
- A. Long sightedness
 - B. Short sightedness
 - C. Astigmatism
 - D. Presbyopia
30. When a person moves from dark room into bright light the pupil becomes
- A. Red
 - B. Larger
 - C. White
 - D. Smaller
31. The opening through which light enters the eye is called
- A. Cornea
 - B. Iris
 - C. Lens
 - D. Pupil

32. The female part of a flower consist of the
- A. Stigma, style and ovary
 - B. Petals, sepals and anthers
 - C. Stigma, sepals and anthers
 - D. Filaments, style and pollen grains
33. In mammals, fertilization usually occurs in the
- A. Cervix
 - B. Vagina
 - C. Uterus
 - D. Oviduct
34. The androecium is composed of filament,
- A. Pollen grains and ovules
 - B. Anther and pollen sac
 - C. Style and pollen sac
 - D. Stigma and pollen sac
35. Which of the following fruits is schizocarp?
- A. Groundnut
 - B. Desmodium
 - C. Cashew
 - D. Pride of barbadus

36. The ovary of a flower after fertilization will
- A. Become the seen
 - B. Wither away
 - C. Become the fruit
 - D. Develop into sepals
37. Pineapple is an example of a/an
- A. Dehiscent fruit
 - B. Aggregate fruit
 - C. Composite fruit
 - D. Simple fruit
38. If an organism obtain its food by means of haustoria, it is said to be
- A. Holophytic
 - B. Heterophytic
 - C. Saprophytic
 - D. Parasitic
39. The translocation of food materials in plants takes place in the
- A. Xylem
 - B. Cambium
 - C. Phloem
 - D. Sclerenchyma
40. Which of the following is not regarded as a micro nutrient or trace element essential for plant growth?
- A. Phosphorus
 - B. Zinc
 - C. Boron
 - D. Molybdenum

41. Pathogenic micro-organisms in milk can be killed through

- A. Antiseptics
- B. Dehydration
- C. High salinity
- D. Pasteurization

42. Which of these diseases is caused by a virus?

- A. Cholera
- B. Measles
- C. Tetanus
- D. Tuberculosis

43. The causative organism of sleeping sickness is the

- A. Trypanosome
- B. Vibrio-bacterium
- C. Pennicilium
- D. Tsetse-fly

44. An organism where the $2n$ number of chromosomes is 16, the number of chromosomes in each gamete will be

- A. 32
- B. 16
- C. 8
- D. 4

45. A child with genotype AO with a mother of genotype OO, can only have a father of genotype
- A. AA
 - B. BB
 - C. AB
 - D. OO
46. The least evidence in support of the theory of evolution is provided by the study of
- A. Anatomy
 - B. Ecology
 - C. Geology
 - D. Embryology
47. Mendel's first law is known as law of
- A. Use and disuse
 - B. Segregation of genes
 - C. Evolution
 - D. Independent assortment of genes
48. The process by which lime is added to clay soil is known as
- A. Sedimentation
 - B. Flocculation
 - C. Leaching
 - D. Manuring

49. Denitrifying bacteria in nature liberate gaseous nitrogen directly from
- A. Ammonium salts
 - B. Soil nitrates
 - C. Thunderstorms
 - D. Soil nitrites
50. Which of the following is a feature of the population pyramid of a developing country?
- A. Low birth rate
 - B. Low death rate
 - C. Short life span
 - D. Long life span

APPENDIX C

2020 NABTCE MAY/JUNE BIOLOGY MULTIPLE CHOICE QUESTION

1. The basic unit of classification is the
 - A. Class
 - B. Genus
 - C. Kingdom
 - D. Species
2. Which of the following is not a characteristics of living things?
 - A. Expansion
 - B. Feeding
 - C. Growth
 - D. Reproduction
3. An example of Saprophyte is
 - A. Fern
 - B. Hydra
 - C. Mushroom
 - D. Paramecium
4. Which of these organisms exist as a colony?
 - A. Amoeba
 - B. Euglena
 - C. Paramecium
 - D. Volvox

5. The region of the brain which shows greater development in human beings compared with other mammals is the
- A. Cerebellum
 - B. Cerebrum
 - C. Medulla oblongata
 - D. Hypothalamus
6. The cells which receives the stimulus of light and enables the eyes to perform the function of vision, are found in the
- A. Cornea
 - B. Choroid
 - C. Retina
 - D. Sclera
7. The development of a human zygote in a female is determined by the
- A. Course taken by the ovum in reaching the uterus
 - B. Chromosomes of the sperm
 - C. Chromosomes of the ovum
 - D. Time at which copulation takes place
8. In testing for starch, boiling it in water is to
- A. Turn blue-black
 - B. Kill the cells and burn the granules
 - C. Dissolve the waxy cuticle on the leaf surfaces
 - D. Decolorize the leaf

9. Which of the following traits in continuous variation is unlikely to be affected by the environment?
- A. Height
 - B. Skin colour
 - C. Intelligence
 - D. Tongue rolling
10. Which of the following human traits is controlled by genes only and not environmental influence?
- A. Skin colour
 - B. Weight
 - C. Blood group
 - D. Intelligence
11. The sudden changes that may occur in a gene chromosome is known as
- A. Duplication
 - B. Inversion
 - C. Fertilization
 - D. Mutation
12. Which of the following is the chromosomes number in a body cell of organism, whose female has haploid number of chromosomes as 16?
- A. 8
 - B. 16
 - C. 24
 - D. 32

13. Pepsin is secreted as an inactive precursor called pepsinogen because
- A. Pepsin as an enzyme is quickly destroyed by the alkaline food from the mouth.
 - B. All digestive enzymes pass through a precursor stage
 - C. Pepsin is a proteolytic enzyme and might attack the stomach tissue
 - D. Pepsin is not required in large quantity
14. Which of the following organisms is an endoparasite?
- A. Mice
 - B. Mosquito
 - C. Ascaris
 - D. Dodder
15. The instruments used to estimate the number of plant in a habit is called the
- A. Pooter
 - B. Pitfall trap
 - C. Quadrat
 - D. Sweep net
16. Which of the following organisms is a primary consumer?
- A. Dog
 - B. Sheep
 - C. Grass
 - D. Fungus

17. Hypermetropia is corrected by the use of which lenses?
- A. Concave
 - B. Convex
 - C. Cylindrical
 - D. Contact
18. During the germination of seeds, water is taken in the process of
- A. Diffusion
 - B. Hydrolysis
 - C. Imbibitions
 - D. Translocation
19. During photosynthesis, light energy is always absorbed by the
- A. Shoot
 - B. Water
 - C. Chlorophyll
 - D. Enzyme
20. The importance of balanced diet is to
- A. Maintain constant size of an animal
 - B. Provide good taste in the food
 - C. Increase the effectiveness in digestion
 - D. Provide good health for an individual
21. The part of the stomach nearer to the gullet is called the
- A. Epiglottis
 - B. Cardiac sphincter
 - C. Duodenum
 - D. Pyloric sphincter

22. Trace elements are required by plants mainly for the
- A. Formation of pigments and enzymes
 - B. Production of energy and hormones
 - C. Manufacture of carbohydrates
 - D. Manufacture of proteins
23. A food substance was treated with few drops of sudan III solution and a red coloration was obtained, there is evidence that the food contains
- A. Protein
 - B. Starch
 - C. Fat
 - D. Mineral salts
24. The element that is essential for coagulation of blood is
- A. Potassium
 - B. Calcium
 - C. Phosphorus
 - D. Iron
25. Oxygen may be regarded as a waste product in green plant because
- A. It is a by-product of respiration
 - B. It is not used during photosynthesis
 - C. All living organisms use it
 - D. It is a by-product of a metabolic process

26. If a drop of freshly drawn mammalian blood is mixed with a little common salt on a slide and after a few minutes observed under the microscope, the red corpuscles will
- A. Remain the same size
 - B. Swells up
 - C. Lose their red colour
 - D. Shrink
27. The appendicular skeleton in mammals consists of the
- A. Vertebral column and the limb bones
 - B. Limb bones and the limb girdles
 - C. Skull and the limb girdles
 - D. Limb bones and the ribs
28. Which of the following structures is not part of a movable joint?
- A. Tendon
 - B. Bone
 - C. Synovial fluid
 - D. Ligament
29. In a terrestrial habitat the primary producers are the
- A. Fungi
 - B. Rabbits
 - C. Green plants
 - D. Toads

30. Which of these is true about all drupes?
- A. They are dispersed by water
 - B. They are dispersed by animals
 - C. They have stony endocarp
 - D. They have fibrous pericarp
31. Which of the following is not an organ of locomotion in invertebrate animals?
- A. Cilia
 - B. Flagella
 - C. pseudopodia
 - D. wings
32. Hand pulling of weeds is desirable and very effective because it.
- A. Prevents certain diseases
 - B. Reduces humidity
 - C. Brings out the roots and shoots completely
 - D. Increases soil fertility
33. Which of the following labeled parts are locomotory structures?
- A. I and II
 - B. III and IV
 - C. I and III
 - D. II and VI
34. The parts used in the process of respiration are
- A. V and VI
 - B. II and IV
 - C. IV and V
 - D. IV and VI

35. Which of the following is the correct method for collecting soil organism?
- A. Heating the soil sample in an oven
 - B. Aerating the soil sample
 - C. Pouring hot water on the soil to enable the organism float
 - D. Placing a lighted electric bulb over soil in a funnel
36. The entire habits and habitat of an organism can be described as its
- A. Ecological community
 - B. Ecological niche
 - C. Habitat factor
 - D. Biotic factor
37. Which of these instruments can be used to perform an experiment on geotropism?
- A. Pooter
 - B. Cup anemometer
 - C. Klinostat
 - D. Kymography
38. Which of the following processes is responsible for the uptake of glucose from the villi of the small intestine into the blood stream?
- A. Active transport
 - B. Diffusion
 - C. Digestion
 - D. Osmosis

39. Which of the following pairs of animals share all the above features?
- A. Millipede and centipede
 - B. Scorpion and centipede
 - C. spider and crayfish
 - D. Scorpion and spider
40. An organ is a group of
- A. Different cells working together to perform a particular function
 - B. Similar cells working together to perform a particular function
 - C. Different tissues working together to perform a particular function
 - D. The same tissues working together to perform a particular function
41. Which of the following characteristics is not sexs-linked?
- A. Albinism
 - B. Baldness
 - C. Haemophilia
 - D. Colour blindness
42. Long neck in giraffe is used to illustrate the theory of
- A. Use and disuse
 - B. Origin of species
 - C. Origin of life
 - D. Natural selection
43. Evidence for evolution include the following except
- A. Fossil records
 - B. Comparative anatomy
 - C. Mutation of genes
 - D. Geographical distribution of organisms

44. The following studies support the theory of evolution except
- A. Trophic structure
 - B. Comparative anatomy
 - C. Embryology of vertebrates
 - D. Fossil records
45. Which of the following is not a behavioural adaptation used by social animals?
- A. Cryptic
 - B. Mimicry
 - C. Flash
 - D. Season
46. The companion cells are part of the
- A. Pericycle
 - B. Phloem
 - C. Pith
 - D. Xylem
47. The process of deamination is essential for the
- A. Digestion of protein
 - B. Secretion of bile
 - C. Formation of urea
 - D. Formation of antibody

48. In a soil sample, the relevant amount of the different soil particles can best be determined by the process of
- A. Filtration
 - B. Centrifugation
 - C. Precipitation
 - D. Sedimentation
49. The number of individuals in a habitat in relation to the unit space available to each organism is referred to as the
- A. Birthrate
 - B. Density
 - C. Mortality
 - D. Frequency
50. A sudden loss of black pigment from the skin of an African can be attributed to
- A. Loss of epidermis
 - B. Mutation in the skin cells
 - C. A bleeding of black and white gene
 - D. A recombination of genes

APPENDIX D

Answers to NABTCE 2018, 2019 and 2020 Biology multiple Test

S/N	2018	2019	2020
1	C	D	A
2	C	C	A
3	A	A	D
4	A	D	D
5	D	B	C
6	A	B	C
7	A	D	B
8	D	C	B
9	C	A	D
10	B	B	C
11	C	D	D
12	D	D	A
13	B	B	B
14	D	B	C
15	D	C	C
16	A	B	B
17	A	C	B
18	B	A	B
19	B	B	C
20	C	A	D

21	A	C	C
22	D	C	A
23	C	D	C
24	D	B	B
25	B	C	A
26	C	B	D
27	C	D	B
28	A	B	B
29	A	A	C
30	B	D	D
31	A	C	A
32	D	A	A
33	A	D	B
34	D	B	A
35	B	D	B
36	B	A	B
37	B	A	C
38	C	C	A
39	B	C	A
40	C	D	D
41	C	D	B
42	C	C	A

43	C	A	D
44	B	C	A
45	C	A	D
46	D	D	B
47	B	B	A
48	C	C	D
49	D	B	B
50	A	B	B

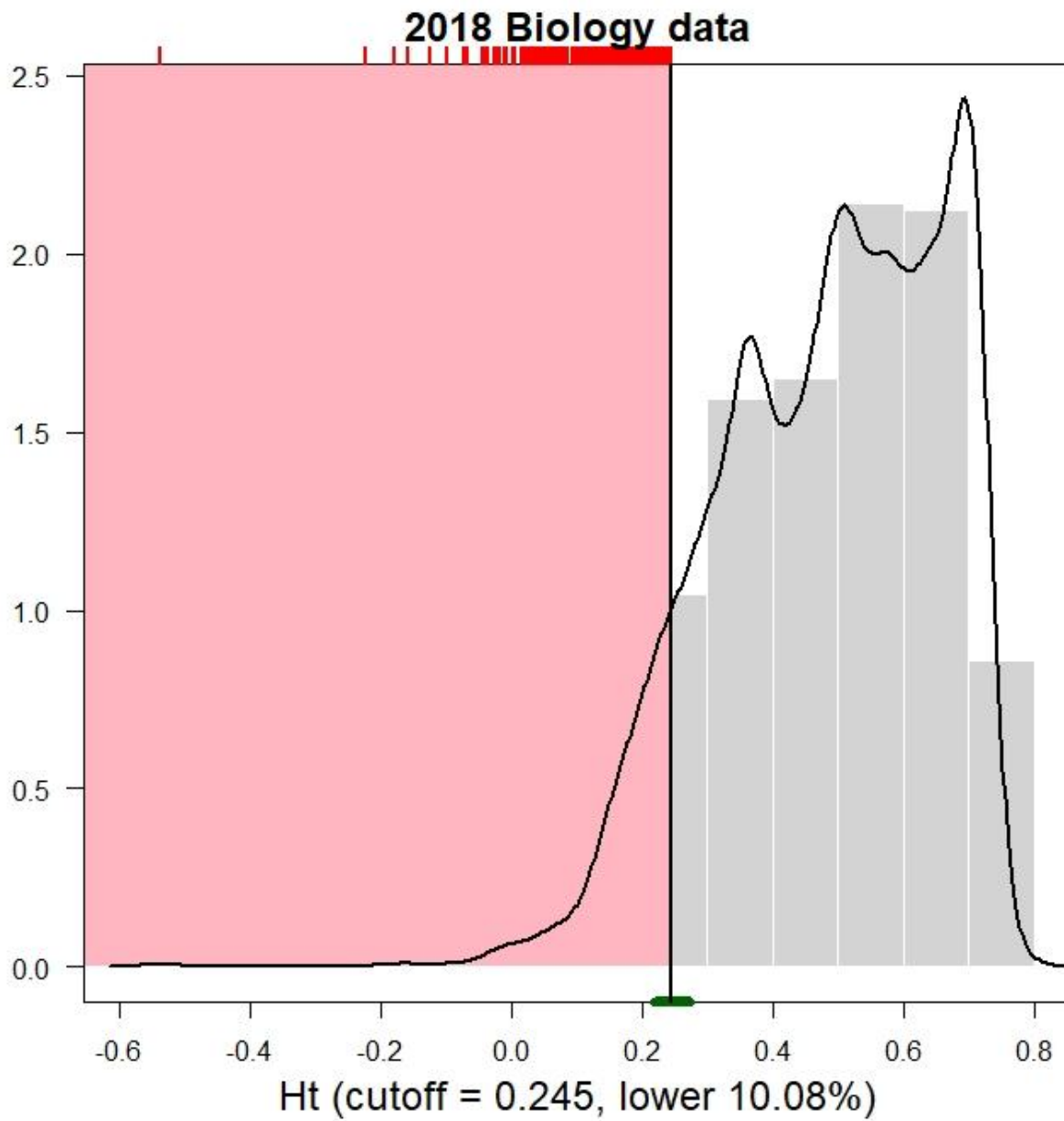
APPENDIX E

Names of Sampled States in Nigeria that were used for the Study

Geopolitical Zones	2018	2019	2020
North/East	Bornu, Yobe	Adamawa, Gombe	Taraba, Bornu
North/West	Kano, Sokoto	Jigawa, Sokoto	Kaduna, Zamfara
North Central	Plateau, Benue	Kogi, Niger	Kwara, Benue
South/East	Imo, Abia	Ebonyi, Abia	Enugu, Anambra
South/South	Rivers, Delta	Akwa-Ibom, CrossRiver	Edo, Bayelsa
South/West	Oyo, Ogun	Osun, Lagos	Ekiti, Ondo

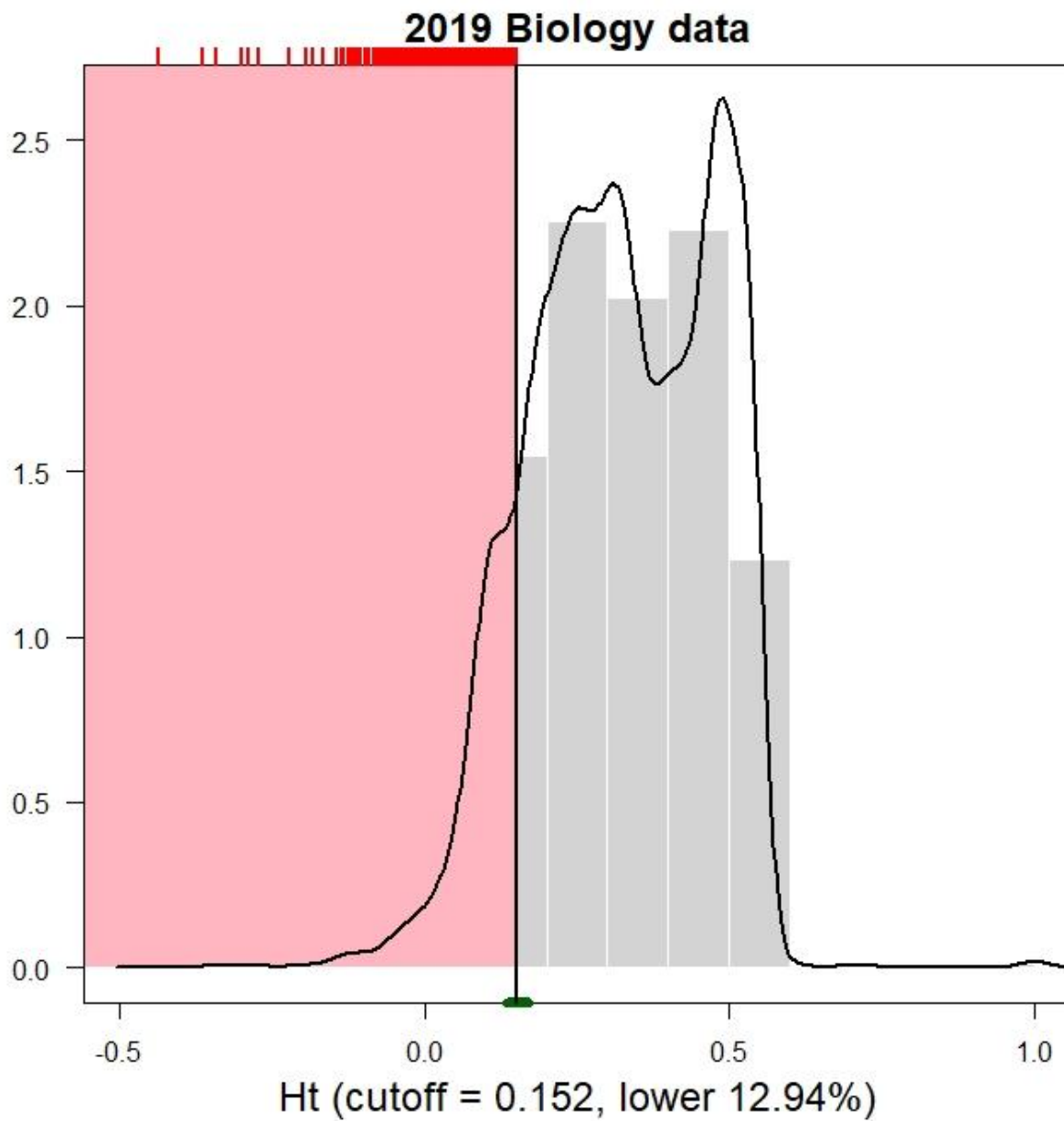
APPENDIX F

Graph of 2018 Biology Response Data with Cutoff Values



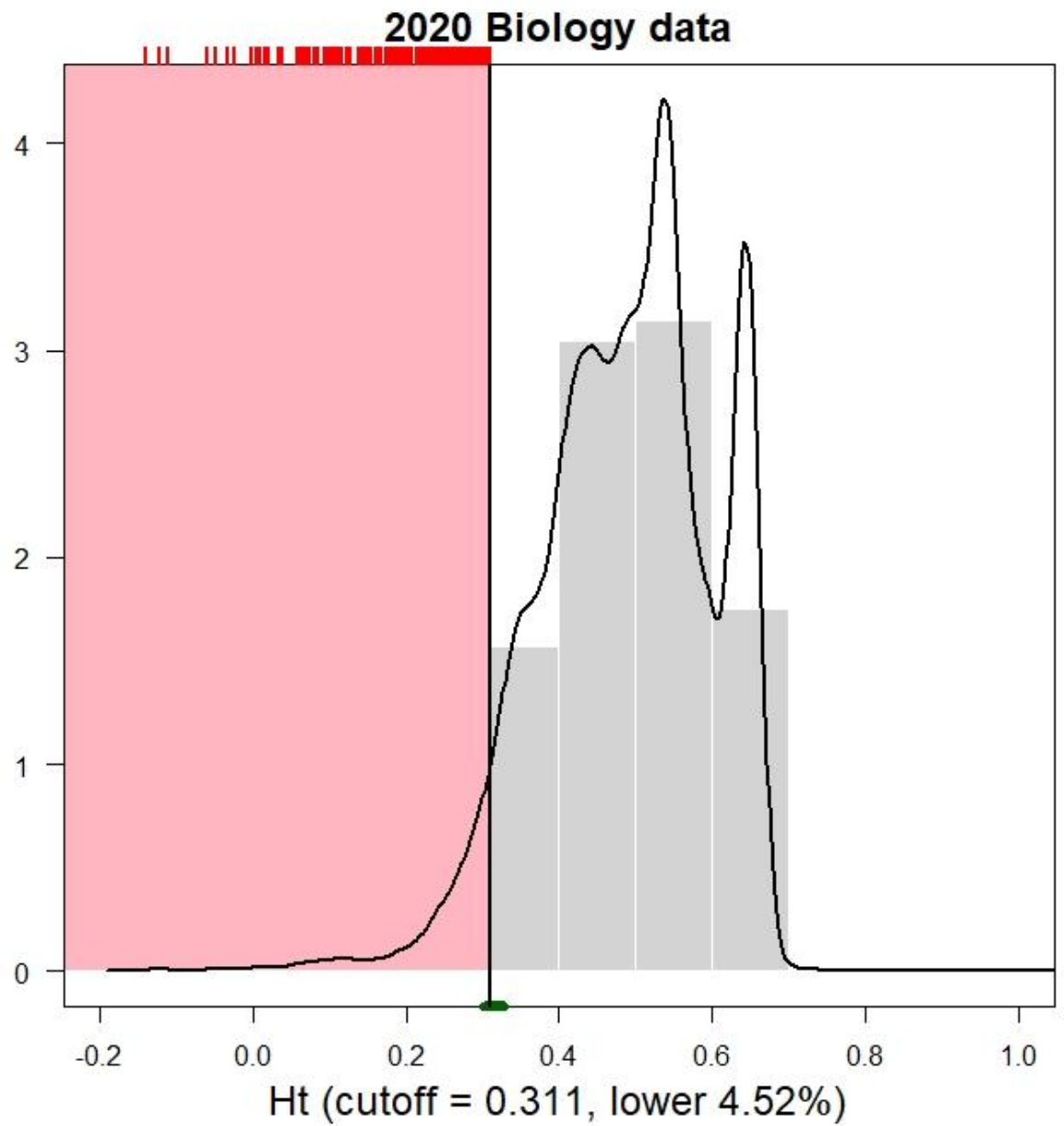
APPENDIX G

Graph of 2019 Biology Response Data with Cutoff Values



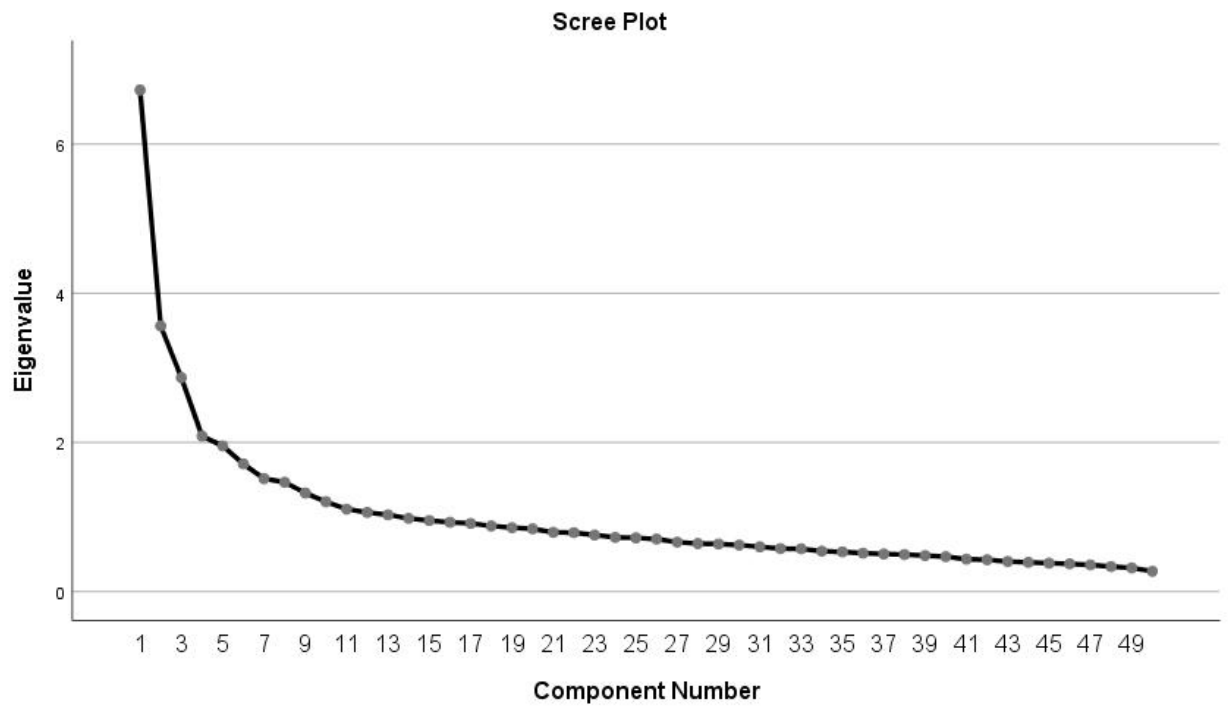
APPENDIX H

Graph of 2020 Biology Response Data with Cutoff Values



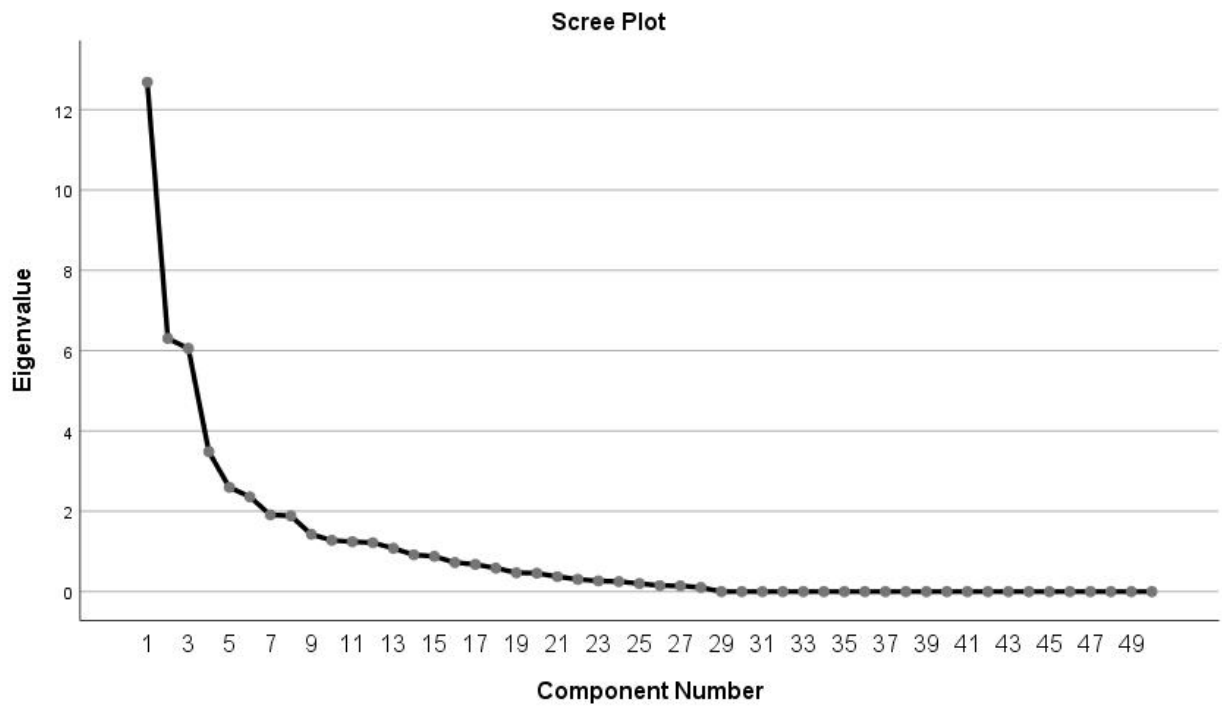
APPENDIX I

Figure 8: Scree Plot of Eigenvalue for 2018 NABTCE Biology Multiple Choice Test



APPENDIX J

Scree Plot of Eigenvalue for 2019 NABTCE Biology Multiple Choice Test



APPENDIX K

Scree Plot of Eigenvalue for 2020 NABTCE Biology Multiple Choice Test



Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
821		0.5206	821		0.4026	821		0.3504
822		0.4142	822		0.4816	822		0.4846
823		0.3894	823		0.4056	823		0.4846
824		0.3013	824		0.2601	824		0.4846
825		0.3511	825		0.4205	825	aberrant	0.1732
826		0.3391	826		0.2695	826		0.4846
827		0.3894	827		0.3954	827		0.4457
828	aberrant	0.1729	828		0.4056	828		0.4846
829		0.437	829		0.327	829		0.4846
830		0.3894	830		0.4527	830	aberrant	0.303
831		0.3529	831		0.5343	831		0.4846
832		0.3274	832		0.3527	832		0.4846
833		0.3428	833		0.4923	833		0.3798
834		0.3428	834		0.3235	834		0.4846
835		0.3818	835		0.4753	835		0.4846
836		0.2626	836		0.2998	836		0.3243
837		0.3921	837		0.4816	837		0.4846
838		0.3294	838		0.4655	838		0.4457
839		0.3818	839		0.2214	839		0.4846
840		0.3818	840		0.434	840		0.4846
841		0.5666	841		0.3895	841		0.3285
842		0.5851	842		0.5343	842		0.4846
843		0.6082	843		0.4167	843		0.4846
844		0.6082	844		0.2581	844	aberrant	0.167
845		0.6082	845		0.4816	845		0.4846
846		0.6082	846		0.4816	846		0.3434
847		0.6626	847		0.425	847		0.4846
848		0.6659	848		0.4816	848		0.4846
849		0.595	849		0.3511	849		0.3972
850		0.595	850		0.3997	850		0.4846
851		0.6082	851		0.3737	851		0.4846
852		0.6082	852		0.4303	852		0.3669
853		0.5719	853		0.4049	853		0.4262
854		0.5851	854		0.4816	854		0.4186
855		0.6082	855		0.3737	855		0.4846
856		0.6082	856		0.3552	856		0.4846
857	aberrant	0.2367	857		0.3102	857		0.3765
858		0.6082	858		0.4816	858		0.6449

859		0.3077	859	aberrant	0.0311	859		0.6449
860		0.3778	860		0.3575	860		0.5885
861	aberrant	0.2066	861		0.3737	861		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
862		0.6989	862		0.3737	862		0.6449
863		0.4713	863		0.3737	863		0.4282
864		0.7063	864		0.2494	864		0.6449
865		0.2598	865		0.1676	865		0.6449
866		0.2741	866		0.425	866		0.6449
867	aberrant	0.2164	867		0.3765	867		0.6449
868		0.2985	868		0.1975	868		0.51
869		0.2741	869		0.1975	869		0.5472
870		0.2741	870		0.3737	870		0.6449
871		0.2741	871		0.1975	871		0.4909
872	aberrant	0.2411	872		0.4816	872		0.6449
873	aberrant	0.2237	873		0.4816	873		0.6449
874		0.2969	874		0.3552	874		0.6449
875		0.4335	875	aberrant	0.0898	875		0.6449
876		0.3722	876		0.2282	876		0.6449
877		0.7063	877		0.3859	877		0.6449
878		0.5459	878		0.3859	878		0.6449
879		0.637	879		0.4816	879		0.5272
880		0.4106	880	aberrant	0.1266	880		0.5272
881		0.4106	881	aberrant	0.1418	881		0.492
882		0.3937	882		0.4816	882		0.5272
883		0.4106	883		0.3765	883		0.4295
884		0.4106	884		0.4816	884		0.5272
885		0.4106	885	aberrant	0.104	885		0.4398
886		0.4106	886		0.3765	886		0.4948
887		0.4106	887		0.3318	887		0.5272
888		0.4106	888		0.2972	888		0.4105
889		0.4106	889		0.4638	889		0.4323
890		0.4106	890		0.466	890		0.5296
891		0.4106	891		0.466	891		0.5026
892		0.4106	892		0.2448	892		0.4768
893		0.4106	893		0.5766	893		0.5272
894		0.4813	894		0.5119	894		0.5272
895		0.4222	895		0.4975	895		0.4645
896		0.4018	896		0.2674	896		0.3782
897		0.3937	897		0.4591	897		0.5011
898		0.4106	898		0.4448	898	aberrant	0.082
899		0.3748	899		0.3224	899		0.488
900		0.3516	900		0.474	900		0.4579

901		0.3748	901		0.4912	901		0.5272
902		0.3005	902		0.4912	902		0.4948

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
903		0.2701	903		0.4167	903		0.439
904		0.268	904		0.4067	904		0.4752
905	aberrant	0.1823	905		0.4579	905		0.4355
906	aberrant	0.1777	906		0.4463	906		0.5039
907		0.2881	907		0.3991	907		0.5272
908		0.2817	908		0.4642	908		0.5272
909	aberrant	0.2213	909		0.3991	909		0.4302
910		0.3104	910		0.4209	910		0.4948
911	aberrant	0.1945	911		0.4838	911		0.5022
912		0.3071	912		0.3334	912		0.4895
913		0.3071	913		0.3873	913		0.5272
914		0.3071	914		0.4804	914		0.5874
915		0.3071	915		0.4126	915		0.6161
916	aberrant	0.2219	916		0.5119	916		0.3211
917	aberrant	0.214	917		0.505	917		0.5554
918	aberrant	0.214	918		0.5144	918		0.3538
919		0.3273	919		0.162	919		0.3967
920		0.344	920		0.4571	920		0.3204
921		0.3273	921		0.5119	921		0.3696
922		0.3196	922	aberrant	0.127	922		0.3455
923		0.3772	923	aberrant	0.1326	923		0.3404
924		0.3273	924	aberrant	0.1312	924		0.5442
925		0.354	925	aberrant	0.1166	925		0.3392
926		0.2858	926	aberrant	0.0425	926		0.3538
927		0.2985	927	aberrant	0.0377	927		0.6189
928		0.3073	928	aberrant	0.0521	928		0.3217
929		0.2875	929	aberrant	0.0922	929		0.6449
930		0.2955	930	aberrant	0.038	930		0.5419
931		0.3602	931	aberrant	0.0647	931		0.339
932		0.3799	932		0.4658	932		0.3557
933		0.3331	933		0.5343	933		0.3557
934		0.3043	934		0.5343	934	aberrant	0.2573
935		0.3559	935		0.5343	935		0.5756
936		0.2825	936		0.5343	936		0.3961
937		0.2875	937		0.5259	937	aberrant	0.2023
938		0.2949	938		0.4882	938	aberrant	0.1851
939		0.2563	939		0.5343	939		0.3961
940	aberrant	0.129	940		0.5343	940		0.339
941		0.2756	941		0.5357	941		0.6449

942		0.2737	942		0.5298	942		0.6449
943		0.294	943		0.4106	943		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
944		0.2756	944		0.5313	944		0.6449
945		0.3028	945		0.4683	945		0.6449
946		0.3071	946		0.5343	946		0.6449
947		0.3071	947		0.5259	947		0.5205
948		0.2875	948		0.5357	948		0.5661
949		0.2913	949		0.4658	949		0.6449
950	aberrant	0.2303	950		0.5357	950		0.6449
951	aberrant	-0.018	951		0.5343	951		0.5072
952	aberrant	0.1311	952		0.5343	952		0.4835
953	aberrant	0.0816	953		0.4444	953		0.5414
954	aberrant	0.051	954		0.5357	954		0.5396
955	aberrant	0.1612	955		0.5174	955		0.5095
956	aberrant	0.0525	956		0.5343	956		0.3364
957	aberrant	0.0589	957		0.5343	957		0.5414
958	aberrant	0.0457	958		0.5343	958		0.4352
959	aberrant	0.2177	959		0.5343	959		0.5396
960		0.4208	960		0.5343	960		0.4122
961		0.4208	961		0.5298	961		0.4732
962		0.2611	962		0.5343	962		0.5396
963		0.4208	963		0.5001	963		0.4876
964		0.3478	964		0.5233	964		0.521
965		0.4208	965		0.4861	965		0.5038
966		0.3566	966		0.4647	966		0.5153
967		0.3771	967		0.5343	967		0.5396
968		0.4208	968		0.5343	968		0.4054
969		0.4208	969		0.3224	969	aberrant	0.2655
970		0.4208	970		0.2658	970		0.4464
971		0.4208	971		0.2672	971		0.4588
972		0.4208	972		0.2878	972		0.4045
973		0.4208	973		0.2588	973		0.4464
974		0.4208	974		0.3154	974		0.4588
975		0.3681	975		0.2666	975		0.4397
976		0.3884	976		0.2272	976		0.4588
977		0.3771	977		0.2328	977		0.4451
978		0.4208	978		0.2597	978		0.4093
979		0.4208	979		0.2221	979		0.4464
980		0.4208	980		0.2349	980		0.456
981		0.4208	981		0.2569	981		0.4464
982		0.2863	982		0.2142	982		0.4464

983		0.4208	983		0.2191	983		0.4359
984		0.3478	984		0.3271	984		0.4003

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
985		0.4208	985		0.1878	985		0.4464
986		0.4208	986		0.2191	986		0.4464
987		0.4208	987		0.1894	987		0.3811
988		0.4208	988		0.2406	988		0.4588
989		0.4208	989		0.2484	989		0.6449
990		0.4208	990		0.2191	990		0.4588
991		0.4197	991		0.2106	991		0.3855
992		0.4252	992		0.1812	992		0.4464
993		0.4252	993		0.2191	993		0.4054
994		0.4252	994		0.2191	994		0.4464
995		0.4035	995		0.1891	995		0.425
996		0.4252	996		0.1691	996		0.4464
997		0.4252	997		0.2844	997		0.4464
998		0.4252	998		0.1878	998		0.4224
999		0.4252	999		0.2234	999		0.4464
1000		0.2858	1000		0.2989	1000		0.4397
1001	aberrant	0.226	1001	aberrant	0.1312	1001		0.4464
1002	aberrant	0.1325	1002	aberrant	0.1379	1002		0.4464
1003	aberrant	0.1925	1003		0.4862	1003		0.4464
1004		0.2858	1004		0.4816	1004		0.4047
1005	aberrant	0.226	1005		0.4816	1005		0.4464
1006	aberrant	0.192	1006		0.4161	1006		0.4464
1007	aberrant	0.192	1007		0.4816	1007		0.4464
1008	aberrant	0.1622	1008		0.1697	1008		0.4464
1009	aberrant	0.2073	1009		0.4806	1009		0.4464
1010	aberrant	0.192	1010		0.2556	1010		0.4464
1011	aberrant	0.1549	1011		0.3768	1011		0.4464
1012		0.2546	1012		0.5343	1012		0.4542
1013	aberrant	0.199	1013		0.3828	1013		0.4322
1014		0.252	1014		0.5023	1014		0.3982
1015		0.4373	1015		0.3757	1015		0.4464
1016	aberrant	0.2321	1016		0.5271	1016		0.4464
1017	aberrant	0.2447	1017		0.5124	1017		0.4464
1018		0.2736	1018		0.4806	1018		0.4464
1019		0.6732	1019		0.4869	1019		0.4464
1020		0.451	1020		0.4869	1020		0.4464
1021	aberrant	0.1924	1021		0.4923	1021		0.4359
1022	aberrant	0.1924	1022		0.4305	1022		0.4184
1023	aberrant	0.2321	1023		0.4099	1023		0.4464

1024	aberrant	0.199	1024		0.4718	1024		0.39
1025	aberrant	0.167	1025		0.5343	1025		0.4464

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1026	aberrant	0.199	1026		0.497	1026		0.4464
1027	aberrant	0.1908	1027		0.4189	1027		0.4464
1028	aberrant	0.199	1028		0.5119	1028		0.4464
1029		0.2988	1029		0.5271	1029		0.4464
1030	aberrant	0.2321	1030		0.5343	1030		0.4464
1031	aberrant	0.2321	1031		0.5343	1031		0.4542
1032	aberrant	0.2321	1032		0.5343	1032		0.4542
1033	aberrant	0.1539	1033		0.5343	1033		0.6449
1034		0.6304	1034		0.5271	1034		0.6126
1035		0.3077	1035		0.5271	1035		0.5443
1036		0.3077	1036		0.4977	1036		0.6449
1037		0.3077	1037		0.5271	1037		0.6126
1038		0.3077	1038		0.2984	1038		0.6449
1039		0.2797	1039		0.5343	1039		0.6449
1040	aberrant	0.2297	1040		0.5062	1040		0.6449
1041		0.3077	1041		0.4383	1041		0.5722
1042		0.2797	1042		0.5343	1042		0.5953
1043		0.3077	1043		0.4138	1043		0.4934
1044		0.3077	1044		0.4926	1044		0.5953
1045		0.3077	1045		0.4549	1045		0.6449
1046		0.3077	1046		0.4709	1046		0.4969
1047		0.3767	1047		0.5271	1047		0.5487
1048		0.3077	1048		0.5343	1048		0.6449
1049		0.3077	1049		0.4854	1049		0.6449
1050		0.3125	1050		0.5343	1050		0.6449
1051		0.3077	1051		0.5204	1051		0.6449
1052	aberrant	0.2414	1052		0.4951	1052		0.5923
1053		0.3077	1053		0.5343	1053		0.6449
1054	aberrant	0.2368	1054		0.5343	1054		0.5362
1055		0.5204	1055		0.5343	1055		0.6449
1056		0.6896	1056	aberrant	0.0753	1056		0.5874
1057	aberrant	-0.5373	1057		0.5343	1057		0.6449
1058	aberrant	-0.5373	1058		0.5343	1058		0.5582
1059	aberrant	-0.5373	1059		0.5259	1059		0.6449
1060	aberrant	-0.5373	1060		0.3977	1060		0.6449
1061		0.276	1061		0.5343	1061		0.6382
1062	aberrant	0.1858	1062		0.5343	1062		0.6449
1063		0.4684	1063		0.5343	1063		0.6449
1064		0.3718	1064		0.48	1064		0.6449

1065		0.2981	1065		0.5343	1065		0.6449
1066		0.2674	1066		0.4665	1066		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1067	aberrant	0.2415	1067		0.5343	1067		0.5834
1068		0.2546	1068		0.5343	1068		0.6111
1069		0.2875	1069	aberrant	0.1249	1069		0.6449
1070		0.2567	1070		0.4169	1070		0.6449
1071	aberrant	0.2308	1071		0.5343	1071		0.6449
1072		0.3532	1072		0.4546	1072		0.6449
1073		0.2886	1073		0.5343	1073		0.6449
1074		0.3098	1074		0.3428	1074		0.5419
1075		0.2988	1075		0.5343	1075		0.5948
1076		0.3428	1076		0.5343	1076		0.5577
1077		0.2502	1077		0.2649	1077		0.6449
1078	aberrant	0.167	1078		0.2649	1078		0.4983
1079		0.2777	1079		0.2567	1079		0.6449
1080		0.3443	1080		0.2322	1080		0.6449
1081		0.2595	1081		0.1752	1081		0.6111
1082		0.2777	1082		0.2567	1082		0.6449
1083		0.2926	1083		0.2567	1083		0.6449
1084	aberrant	0.1747	1084		0.2567	1084		0.5418
1085		0.3744	1085		0.2649	1085		0.6449
1086		0.6389	1086		0.2649	1086		0.5941
1087		0.6367	1087	aberrant	0.0693	1087		0.6449
1088		0.5369	1088		0.2438	1088		0.6449
1089		0.5924	1089		0.2649	1089		0.5761
1090		0.6896	1090		0.2649	1090		0.6449
1091		0.3529	1091	aberrant	0.1462	1091		0.6449
1092		0.6367	1092	aberrant	0.1462	1092		0.6449
1093		0.6367	1093		0.2649	1093		0.431
1094		0.6367	1094		0.4404	1094		0.5431
1095		0.4096	1095		0.4426	1095		0.5158
1096		0.6062	1096		0.4404	1096		0.5179
1097		0.6874	1097		0.4404	1097		0.4898
1098		0.4973	1098		0.1577	1098		0.4162
1099		0.601	1099		0.4489	1099		0.5132
1100		0.6389	1100		0.4404	1100		0.4475
1101		0.5694	1101		0.4404	1101		0.5072
1102		0.5771	1102		0.2555	1102		0.4603
1103		0.6333	1103		0.4404	1103		0.4945
1104		0.6874	1104		0.1531	1104		0.6002
1105		0.5879	1105		0.5343	1105		0.4734

1106		0.2818	1106		0.4968	1106		0.4908
1107		0.4126	1107		0.5343	1107		0.4395

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1108		0.4874	1108		0.4968	1108		0.4996
1109		0.4924	1109		0.5343	1109		0.369
1110		0.4941	1110		0.5343	1110		0.4541
1111		0.4941	1111	aberrant	0.085	1111		0.4085
1112		0.4145	1112		0.5099	1112		0.521
1113		0.3871	1113		0.4843	1113		0.5538
1114		0.4673	1114		0.5343	1114		0.5808
1115		0.4342	1115		0.5343	1115		0.5583
1116		0.2732	1116		0.5343	1116		0.5194
1117		0.2976	1117		0.4483	1117		0.4989
1118		0.4122	1118		0.5343	1118		0.4313
1119		0.4239	1119		0.5088	1119		0.6449
1120		0.2888	1120		0.5343	1120		0.6449
1121		0.3364	1121	aberrant	-0.0008	1121		0.5874
1122		0.3364	1122		0.5343	1122		0.6449
1123		0.2757	1123		0.5343	1123		0.5496
1124		0.5796	1124		0.5343	1124		0.4813
1125		0.3992	1125		0.5343	1125		0.6449
1126		0.3364	1126		0.5343	1126		0.5525
1127		0.3809	1127		0.5343	1127		0.5408
1128		0.3992	1128		0.5343	1128		0.6449
1129		0.3992	1129		0.2114	1129		0.6449
1130		0.3587	1130		0.4816	1130		0.5587
1131		0.3151	1131		0.505	1131		0.4872
1132		0.3151	1132		0.5123	1132		0.6449
1133		0.4122	1133		0.501	1133		0.3991
1134		0.3992	1134		0.5343	1134		0.6087
1135		0.3031	1135		0.4379	1135		0.4906
1136		0.3992	1136		0.3662	1136		0.5256
1137		0.3992	1137		0.4816	1137		0.6449
1138		0.3992	1138		0.5145	1138		0.5874
1139		0.3992	1139		0.5343	1139		0.5885
1140		0.3992	1140		0.4816	1140		0.5286
1141		0.3108	1141		0.4059	1141		0.6449
1142		0.3992	1142		0.4687	1142		0.3888
1143		0.3364	1143		0.5343	1143		0.6449
1144		0.2875	1144	aberrant	0.09	1144		0.5455
1145		0.3992	1145		0.2025	1145		0.6449
1146		0.347	1146		0.4816	1146		0.6449

1147		0.3364	1147		0.5343	1147		0.6449
1148		0.3992	1148		0.4073	1148		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1149		0.3992	1149		0.4816	1149		0.5874
1150		0.3992	1150		0.3441	1150		0.5248
1151		0.3421	1151		0.4016	1151		0.5652
1152		0.5727	1152		0.3236	1152		0.5819
1153		0.6082	1153		0.4474	1153		0.5926
1154	aberrant	0.1323	1154		0.4816	1154		0.5874
1155	aberrant	0.216	1155		0.4158	1155		0.5926
1156	aberrant	0.0389	1156		0.235	1156		0.6449
1157	aberrant	0.0462	1157		0.4816	1157		0.3705
1158		0.2686	1158		0.4073	1158		0.4993
1159	aberrant	0.2239	1159		0.2681	1159		0.5853
1160		0.2597	1160		0.4379	1160		0.5983
1161	aberrant	0.1365	1161		0.5343	1161		0.6449
1162		0.2597	1162		0.3991	1162		0.5885
1163	aberrant	0.1997	1163		0.2899	1163	aberrant	0.249
1164		0.2465	1164		0.3616	1164		0.5874
1165		0.3291	1165		0.4816	1165		0.5292
1166	aberrant	0.1963	1166		0.2342	1166		0.5216
1167	aberrant	0.2309	1167		0.4059	1167	aberrant	0.2637
1168		0.2495	1168		0.4392	1168	aberrant	0.2768
1169		0.2947	1169		0.504	1169	aberrant	0.2768
1170	aberrant	0.2103	1170		0.5343	1170	aberrant	0.2538
1171		0.3514	1171		0.5343	1171		0.4464
1172	aberrant	0.1927	1172		0.5343	1172	aberrant	0.2617
1173	aberrant	0.2431	1173		0.5343	1173		0.4464
1174	aberrant	0.1989	1174		0.5343	1174		0.3955
1175		0.2519	1175		0.4783	1175		0.4464
1176	aberrant	0.166	1176		0.4949	1176	aberrant	0.2836
1177	aberrant	0.2208	1177		0.5119	1177	aberrant	0.2263
1178	aberrant	0.1833	1178		0.5119	1178		0.4464
1179	aberrant	0.2221	1179		0.5343	1179		0.3955
1180	aberrant	0.2002	1180		0.5343	1180		0.4464
1181		0.2465	1181		0.5343	1181	aberrant	0.2798
1182		0.2597	1182		0.4971	1182		0.4464
1183		0.2465	1183		0.4763	1183		0.4464
1184	aberrant	0.1749	1184		0.5269	1184		0.4111
1185	aberrant	0.1425	1185		0.5343	1185		0.4464
1186		0.2854	1186		0.4471	1186		0.4464
1187		0.2969	1187		0.5343	1187	aberrant	0.2323

1188		0.5086	1188		0.5343	1188		0.4464
1189		0.4805	1189		0.5091	1189		0.4464

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1190		0.4978	1190		0.4595	1190		0.4464
1191		0.5086	1191		0.484	1191		0.4111
1192		0.4436	1192		0.5111	1192		0.4037
1193		0.4535	1193		0.4687	1193		0.3806
1194		0.5086	1194		0.3819	1194		0.5111
1195		0.4866	1195		0.5343	1195		0.6449
1196		0.5086	1196		0.505	1196		0.5048
1197		0.5019	1197		0.5343	1197		0.6449
1198		0.4317	1198		0.4796	1198		0.4299
1199		0.4816	1199		0.5343	1199		0.6449
1200		0.5086	1200		0.5071	1200		0.3696
1201		0.5086	1201		0.5071	1201		0.4086
1202		0.4436	1202		0.5238	1202	aberrant	0.3048
1203		0.4288	1203		0.5002	1203		0.511
1204		0.5086	1204		0.4874	1204		0.541
1205		0.5086	1205		0.4612	1205		0.4323
1206		0.5086	1206		0.5313	1206		0.3367
1207		0.4072	1207		0.5199	1207		0.6449
1208		0.5086	1208		0.4816	1208		0.3719
1209		0.5019	1209		0.4749	1209		0.6449
1210		0.5086	1210		0.4599	1210		0.5503
1211		0.4204	1211		0.4595	1211		0.367
1212		0.5014	1212		0.5343	1212		0.6449
1213		0.4253	1213		0.5343	1213		0.5529
1214		0.5086	1214		0.5343	1214		0.5808
1215		0.4883	1215		0.5343	1215		0.4714
1216		0.4882	1216		0.3465	1216		0.3728
1217		0.4436	1217		0.5343	1217		0.6449
1218		0.5086	1218		0.4266	1218		0.6449
1219		0.4388	1219		0.5343	1219		0.6449
1220		0.4436	1220		0.5313	1220		0.3977
1221		0.4915	1221		0.5313	1221		0.4829
1222		0.4436	1222		0.4658	1222		0.4014
1223		0.4116	1223		0.4638	1223		0.6449
1224		0.5086	1224		0.5313	1224		0.6449
1225		0.4866	1225		0.4978	1225		0.4681
1226		0.5086	1226		0.5059	1226		0.4878
1227		0.5069	1227		0.504	1227		0.6449
1228		0.4837	1228		0.5313	1228		0.504

1229		0.5086	1229		0.5123	1229		0.6449
1230		0.4822	1230		0.1678	1230		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1231		0.4863	1231		0.4612	1231		0.6449
1232		0.4551	1232		0.5105	1232		0.5314
1233		0.5086	1233		0.5343	1233		0.5929
1234		0.5086	1234		0.4783	1234		0.6449
1235		0.4436	1235		0.501	1235		0.4962
1236		0.5014	1236		0.5343	1236		0.6449
1237		0.5086	1237		0.4825	1237	aberrant	0.2875
1238		0.5086	1238		0.4587	1238		0.6449
1239		0.5086	1239		0.3418	1239		0.6449
1240		0.4436	1240		0.4835	1240		0.5298
1241		0.5086	1241		0.4709	1241		0.6752
1242		0.5086	1242		0.5343	1242		0.6449
1243		0.5086	1243		0.3359	1243		0.4911
1244		0.4335	1244		0.2708	1244		0.4947
1245		0.4793	1245		0.1901	1245		0.4747
1246		0.5086	1246	aberrant	0.109	1246		0.6449
1247		0.4866	1247		0.2654	1247		0.6449
1248		0.5086	1248		0.1953	1248		0.3569
1249		0.5086	1249		0.1614	1249		0.4934
1250		0.5086	1250		0.2032	1250		0.5235
1251		0.505	1251		0.2467	1251		0.5279
1252		0.5019	1252		0.2105	1252		0.4247
1253		0.4866	1253		0.2528	1253		0.4147
1254		0.3952	1254		0.5116	1254		0.3877
1255		0.5514	1255		0.4919	1255		0.4532
1256		0.4886	1256		0.4358	1256		0.479
1257		0.5244	1257		0.164	1257		0.4151
1258		0.486	1258		0.2015	1258		0.4699
1259		0.6517	1259		0.279	1259		0.5883
1260		0.5244	1260		0.279	1260		0.4464
1261		0.572	1261		0.2362	1261		0.3933
1262		0.4306	1262		0.259	1262		0.3765
1263		0.5087	1263		0.2257	1263		0.3807
1264		0.71	1264		0.2257	1264		0.4398
1265		0.4886	1265		0.2257	1265		0.4184
1266		0.6544	1266		0.279	1266		0.3271
1267		0.4744	1267		0.2924	1267	aberrant	0.183
1268		0.4911	1268		0.2257	1268		0.3704
1269		0.71	1269		0.2257	1269		0.3993

1270		0.5544	1270		0.5343	1270		0.4855
1271		0.5426	1271		0.5343	1271		0.353

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1272		0.5085	1272		0.5343	1272	aberrant	0.3002
1273	aberrant	0.2184	1273		0.5145	1273		0.4142
1274		0.4949	1274		0.5343	1274		0.3194
1275		0.6896	1275		0.5343	1275		0.387
1276		0.5244	1276		0.5343	1276		0.3776
1277		0.3864	1277		0.5095	1277	aberrant	0.2956
1278		0.5244	1278		0.4967	1278		0.3894
1279		0.5262	1279		0.4592	1279		0.3933
1280		0.5408	1280		0.4749	1280		0.3933
1281	aberrant	0.1837	1281		0.23	1281		0.4464
1282		0.3608	1282	aberrant	0.0803	1282		0.4137
1283		0.4507	1283		0.196	1283		0.4164
1284		0.3722	1284		0.1811	1284		0.4663
1285	aberrant	0.044	1285	aberrant	0.1291	1285		0.3658
1286		0.4955	1286		0.1603	1286		0.3933
1287	aberrant	-0.04	1287		0.2318	1287		0.4464
1288		0.5715	1288		0.4471	1288		0.3765
1289		0.4686	1289	aberrant	0.0758	1289		0.3821
1290		0.6896	1290	aberrant	-0.0171	1290		0.3865
1291		0.5618	1291		0.2055	1291		0.3933
1292		0.5905	1292		0.6223	1292		0.3933
1293		0.6544	1293		0.693	1293		0.3933
1294		0.6896	1294		0.5988	1294		0.3999
1295		0.5762	1295		0.4364	1295		0.4184
1296		0.4499	1296		0.7404	1296		0.4571
1297		0.5244	1297		1	1297		0.3933
1298		0.5244	1298		0.7045	1298		0.4477
1299		0.6456	1299		0.5877	1299		0.3822
1300		0.2536	1300		0.5343	1300		0.4157
1301		0.5244	1301		0.4816	1301	aberrant	0.2968
1302		0.4529	1302		0.402	1302		0.5587
1303		0.4012	1303	aberrant	0.0944	1303	aberrant	0.3071
1304		0.5932	1304		0.4396	1304		0.3933
1305		0.4919	1305		0.5343	1305		0.6005
1306		0.4313	1306		0.4328	1306		0.4483
1307		0.6037	1307		0.5343	1307		0.6449
1308		0.5422	1308		0.4407	1308		0.3362
1309		0.5258	1309		0.5343	1309		0.356
1310		0.5244	1310		0.1629	1310		0.3567

1311		0.461	1311		0.5271	1311		0.3933
1312		0.5533	1312		0.4439	1312		0.3765

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1313		0.5426	1313		0.3888	1313		0.5116
1314		0.4673	1314		0.4234	1314		0.5005
1315		0.5244	1315		0.5271	1315		0.3933
1316		0.5262	1316		0.5271	1316		0.3773
1317		0.3509	1317		0.5343	1317		0.4679
1318	aberrant	0.125	1318		0.5343	1318		0.4136
1319		0.5504	1319		0.4763	1319		0.3933
1320		0.5085	1320	aberrant	-0.1365	1320		0.3434
1321		0.2836	1321		0.1759	1321		0.3933
1322		0.2836	1322		0.3534	1322		0.3637
1323	aberrant	0.2342	1323		0.3534	1323		0.4308
1324		0.2764	1324		0.2915	1324		0.5471
1325	aberrant	0.2155	1325		0.3534	1325		0.4162
1326	aberrant	0.1745	1326		0.2915	1326		0.3766
1327	aberrant	0.0939	1327		0.3534	1327		0.3567
1328		0.2464	1328		0.2915	1328		0.3964
1329	aberrant	0.2241	1329		0.3807	1329		0.365
1330		0.2514	1330		0.213	1330		0.3758
1331	aberrant	0.1174	1331		0.2526	1331	aberrant	0.3052
1332	aberrant	0.2258	1332		0.2526	1332		0.4205
1333	aberrant	0.1923	1333		0.3534	1333		0.3933
1334		0.2528	1334		0.3534	1334	aberrant	0.3105
1335		0.3257	1335		0.3016	1335	aberrant	0.2787
1336	aberrant	-0.0717	1336		0.2526	1336		0.3933
1337	aberrant	0.1311	1337		0.3534	1337	aberrant	0.2993
1338	aberrant	0.0732	1338		0.2526	1338		0.3428
1339	aberrant	0.1311	1339		0.2526	1339		0.4609
1340		0.2612	1340		0.3807	1340		0.3807
1341		0.3077	1341		0.3319	1341		0.3933
1342		0.3077	1342		0.3534	1342		0.3933
1343		0.2612	1343		0.2526	1343		0.4322
1344	aberrant	0.2416	1344		0.3534	1344		0.3822
1345		0.3077	1345		0.3552	1345		0.4322
1346		0.2612	1346		0.2526	1346		0.4464
1347		0.3077	1347		0.2915	1347	aberrant	0.2618
1348		0.3077	1348		0.3534	1348		0.5121
1349	aberrant	0.24	1349		0.3534	1349		0.3933
1350		0.3077	1350		0.3534	1350		0.6027
1351		0.2612	1351		0.3008	1351		0.4473

1352	aberrant	0.2205	1352		0.3534	1352		0.3933
1353		0.3077	1353		0.2915	1353		0.3617

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1354		0.3077	1354		0.2915	1354		0.4773
1355	aberrant	0.2417	1355		0.3534	1355		0.3933
1356		0.3077	1356		0.2915	1356		0.3794
1357		0.2846	1357		0.3534	1357		0.3782
1358		0.2612	1358		0.3534	1358		0.4732
1359	aberrant	0.2403	1359		0.2915	1359		0.5761
1360		0.6544	1360		0.2915	1360		0.5761
1361		0.6572	1361		0.2915	1361		0.5773
1362		0.3077	1362	aberrant	0.1404	1362		0.5761
1363		0.3018	1363		0.2915	1363		0.6449
1364		0.2612	1364		0.2286	1364		0.5264
1365		0.3273	1365		0.2915	1365		0.5761
1366		0.4015	1366		0.3534	1366		0.519
1367		0.4015	1367		0.3807	1367		0.5449
1368		0.3483	1368		0.204	1368		0.5761
1369		0.4015	1369		0.2915	1369		0.5773
1370		0.4015	1370		0.3534	1370		0.5378
1371		0.2656	1371		0.4202	1371		0.6449
1372		0.3636	1372		0.411	1372		0.6449
1373		0.443	1373		0.4202	1373		0.6449
1374		0.3854	1374		0.2575	1374		0.6449
1375		0.4015	1375		0.2575	1375		0.6449
1376		0.5204	1376		0.299	1376		0.6449
1377		0.6874	1377		0.2575	1377		0.6099
1378		0.6303	1378		0.4202	1378		0.577
1379		0.2761	1379		0.4115	1379		0.5778
1380		0.3584	1380		0.4639	1380		0.5318
1381		0.536	1381		0.4887	1381		0.6529
1382	aberrant	0.1664	1382		0.4202	1382		0.5404
1383		0.5085	1383		0.3654	1383		0.5648
1384		0.5085	1384		0.41	1384		0.577
1385	aberrant	0.1505	1385		0.3795	1385		0.577
1386		0.4544	1386		0.3952	1386		0.5166
1387		0.3874	1387		0.2575	1387		0.6099
1388		0.5085	1388		0.376	1388		0.577
1389		0.5085	1389		0.3695	1389		0.5503
1390		0.4544	1390		0.348	1390		0.577
1391		0.5085	1391		0.41	1391		0.4998
1392	aberrant	0.0672	1392		0.4874	1392		0.577

1393		0.4357	1393		0.3952	1393		0.577
1394		0.5085	1394		0.4874	1394		0.5283

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1395		0.3862	1395		0.4639	1395		0.577
1396		0.2987	1396		0.289	1396		0.6099
1397		0.3712	1397		0.3943	1397		0.577
1398		0.5076	1398		0.4202	1398		0.3346
1399		0.5085	1399		0.4874	1399	aberrant	0.277
1400		0.5085	1400		0.4874	1400		0.3657
1401	aberrant	0.2137	1401		0.3615	1401		0.3764
1402		0.3527	1402		0.4263	1402		0.3651
1403		0.5085	1403		0.4639	1403		0.3786
1404		0.4105	1404		0.3654	1404		0.4639
1405		0.4076	1405		0.4874	1405		0.3862
1406		0.5802	1406		0.4874	1406		0.4105
1407		0.6285	1407		0.4874	1407		0.4059
1408		0.5085	1408		0.4982	1408		0.4105
1409		0.475	1409		0.3654	1409		0.3651
1410		0.5085	1410		0.3654	1410		0.3829
1411		0.5085	1411		0.4202	1411	aberrant	0.3101
1412		0.5085	1412		0.4874	1412		0.5067
1413		0.5085	1413		0.4874	1413		0.364
1414		0.5016	1414		0.3148	1414		0.4853
1415	aberrant	0.2247	1415		0.4202	1415		0.5093
1416		0.5039	1416		0.3931	1416		0.4109
1417		0.5085	1417		0.4353	1417		0.3547
1418		0.5085	1418		0.3615	1418	aberrant	0.2361
1419		0.4357	1419		0.289	1419		0.4032
1420		0.5085	1420		0.4263	1420		0.431
1421		0.3996	1421		0.5111	1421		0.5874
1422		0.4686	1422		0.5257	1422		0.6449
1423		0.5618	1423		0.5343	1423		0.4649
1424		0.4542	1424		0.5182	1424		0.6449
1425		0.5489	1425		0.464	1425		0.5105
1426		0.2696	1426		0.5343	1426		0.6449
1427		0.5085	1427		0.5111	1427		0.5867
1428		0.4919	1428		0.5111	1428		0.5939
1429		0.5097	1429		0.5343	1429		0.5861
1430		0.4735	1430		0.4521	1430		0.3551
1431		0.5085	1431		0.5343	1431		0.3551
1432		0.5354	1432		0.5111	1432		0.3551
1433		0.5085	1433		0.5111	1433		0.5396

1434		0.4616	1434		0.5343	1434		0.5396
1435		0.5085	1435		0.5343	1435		0.5396

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1436		0.4955	1436		0.5343	1436		0.4118
1437		0.3845	1437		0.5343	1437		0.5396
1438		0.4811	1438		0.5343	1438		0.5396
1439		0.431	1439		0.5343	1439		0.5396
1440		0.5085	1440		0.5343	1440		0.4944
1441		0.5085	1441		0.5059	1441	aberrant	0.3085
1442		0.4538	1442		0.4935	1442	aberrant	0.2754
1443		0.4954	1443		0.5059	1443		0.3289
1444		0.4384	1444		0.5343	1444	aberrant	0.3085
1445		0.2715	1445		0.5059	1445	aberrant	0.2186
1446		0.4919	1446		0.464	1446		0.3321
1447	aberrant	0.0811	1447		0.4682	1447		0.3321
1448		0.3103	1448		0.4209	1448	aberrant	0.2719
1449		0.5548	1449		0.464	1449		0.3549
1450	aberrant	0.2002	1450		0.5059	1450		0.3526
1451		0.6896	1451		0.5343	1451	aberrant	0.3085
1452		0.6896	1452		0.4428	1452		0.3394
1453		0.4105	1453		0.5088	1453	aberrant	0.2395
1454		0.4357	1454		0.4428	1454		0.3321
1455	aberrant	0.0712	1455		0.5059	1455		0.311
1456	aberrant	0.1419	1456		0.464	1456		0.3289
1457		0.3962	1457		0.5059	1457	aberrant	0.2485
1458		0.3412	1458		0.464	1458		0.3504
1459		0.5939	1459		0.464	1459		0.6449
1460	aberrant	0.1528	1460		0.5059	1460		0.3366
1461	aberrant	0.2002	1461		0.5343	1461	aberrant	0.3024
1462		0.369	1462		0.3501	1462	aberrant	0.3024
1463		0.2472	1463		0.4381	1463		0.5376
1464		0.3292	1464		0.3501	1464		0.6449
1465		0.5541	1465		0.3941	1465		0.6449
1466	aberrant	0.1262	1466		0.4381	1466		0.5885
1467		0.3292	1467		0.3941	1467		0.5396
1468		0.2902	1468		0.3941	1468		0.3435
1469		0.3393	1469		0.4381	1469	aberrant	0.2338
1470		0.6874	1470		0.3941	1470		0.349
1471		0.3959	1471		0.4861	1471		0.4518
1472		0.3938	1472		0.4861	1472		0.3794
1473	aberrant	0.1246	1473		0.4861	1473		0.3471
1474	aberrant	0.2375	1474		0.5343	1474		0.6019

1475		0.351	1475		0.4861	1475		0.58
1476	aberrant	-0.158	1476		0.5343	1476		0.406

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1477		0.2759	1477		0.5343	1477		0.5583
1478		0.4357	1478		0.5343	1478		0.4833
1479		0.337	1479		0.4142	1479		0.5433
1480	aberrant	0.1761	1480		0.3168	1480		0.5004
1481		0.6164	1481		0.2339	1481		0.5716
1482		0.5255	1482		0.2523	1482		0.6449
1483		0.2597	1483		0.2438	1483		0.5827
1484		0.3234	1484		0.1984	1484		0.5926
1485		0.5327	1485	aberrant	0.1129	1485		0.5853
1486		0.2476	1486		0.2474	1486		0.6449
1487		0.5929	1487		0.3403	1487		0.6449
1488		0.2596	1488		0.3168	1488		0.5741
1489		0.5929	1489	aberrant	0.0722	1489		0.6449
1490		0.5327	1490		0.322	1490		0.5953
1491	aberrant	0.1705	1491		0.3448	1491		0.6449
1492		0.6657	1492		0.3168	1492		0.6449
1493		0.2519	1493		0.2517	1493		0.5426
1494		0.5743	1494		0.2996	1494		0.3858
1495		0.5929	1495		0.1623	1495		0.5058
1496		0.6307	1496		0.3222	1496		0.5776
1497		0.5669	1497		0.2523	1497		0.6449
1498		0.5929	1498		0.4258	1498		0.6002
1499		0.2972	1499		0.4258	1499		0.6449
1500	aberrant	0.0797	1500		0.4258	1500		0.6449
1501	aberrant	0.0702	1501		0.4156	1501		0.6002
1502		0.4584	1502		0.4258	1502		0.5152
1503		0.533	1503		0.4258	1503		0.6449
1504		0.6252	1504		0.4258	1504		0.422
1505		0.457	1505		0.4258	1505		0.372
1506		0.6549	1506		0.4258	1506		0.372
1507	aberrant	0.0336	1507		0.4258	1507	aberrant	0.2229
1508		0.6657	1508		0.4258	1508	aberrant	0.2377
1509		0.5243	1509		0.3482	1509		0.3304
1510		0.5777	1510		0.3294	1510		0.6227
1511		0.4564	1511		0.3454	1511		0.6227
1512		0.6896	1512		0.2594	1512		0.4639
1513		0.5702	1513	aberrant	0.1078	1513		0.5208
1514		0.4419	1514		0.2502	1514		0.5376
1515		0.5579	1515		0.1867	1515		0.5396

1516		0.6657	1516		0.1914	1516		0.5396
1517		0.5929	1517		0.2502	1517		0.5396

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1518		0.5702	1518		0.1867	1518		0.6449
1519		0.6151	1519		0.2292	1519		0.6449
1520		0.5929	1520		0.1749	1520		0.5445
1521		0.5929	1521		0.2071	1521		0.611
1522		0.5425	1522	aberrant	0.1266	1522		0.6449
1523		0.5929	1523		0.4066	1523		0.5724
1524		0.5769	1524		0.3949	1524		0.497
1525		0.6465	1525		0.4066	1525		0.6449
1526		0.5929	1526		0.3406	1526		0.5291
1527		0.5045	1527		0.4084	1527		0.6449
1528		0.5929	1528		0.4066	1528		0.6449
1529		0.6387	1529		0.4066	1529		0.5808
1530		0.3619	1530		0.4066	1530		0.6449
1531		0.533	1531		0.4066	1531		0.5445
1532		0.6896	1532		0.3786	1532		0.5926
1533		0.4412	1533		0.363	1533		0.4602
1534		0.4412	1534		0.4748	1534		0.5867
1535		0.6896	1535		0.4084	1535		0.5857
1536		0.4412	1536		0.4066	1536		0.6449
1537		0.5569	1537		0.4066	1537		0.6449
1538		0.3911	1538		0.3406	1538		0.6449
1539		0.7225	1539		0.363	1539		0.6449
1540		0.3565	1540		0.3786	1540		0.5577
1541		0.71	1541		0.4066	1541		0.4929
1542		0.7225	1542		0.4066	1542		0.3827
1543		0.4133	1543		0.2767	1543		0.6449
1544	aberrant	0.1677	1544		0.2464	1544		0.5776
1545	aberrant	0.2142	1545		0.2312	1545		0.621
1546	aberrant	0.2342	1546		0.2351	1546		0.6449
1547	aberrant	0.2342	1547		0.2247	1547		0.6161
1548	aberrant	0.2234	1548		0.2312	1548		0.3547
1549	aberrant	0.2342	1549		0.2492	1549		0.5953
1550	aberrant	0.2342	1550		0.2427	1550		0.5693
1551	aberrant	0.2342	1551		0.2767	1551		0.5529
1552		0.3597	1552		0.2412	1552		0.6449
1553		0.2998	1553		0.2474	1553		0.6449
1554		0.359	1554		0.3031	1554		0.6449
1555	aberrant	0.2234	1555		0.2681	1555		0.6449
1556		0.4089	1556		0.2545	1556		0.442

1557		0.3532	1557		0.2492	1557		0.4124
1558		0.376	1558		0.2676	1558		0.4263

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1559	aberrant	0.2234	1559		0.2464	1559		0.4492
1560		0.6059	1560		0.275	1560		0.4948
1561	aberrant	0.2342	1561		0.2431	1561		0.4276
1562	aberrant	0.2342	1562		0.2481	1562		0.4266
1563	aberrant	0.2208	1563		0.2668	1563		0.4465
1564	aberrant	0.1295	1564		0.2673	1564		0.6358
1565		0.2729	1565		0.2767	1565	aberrant	0.2006
1566		0.275	1566		0.2676	1566		0.4114
1567	aberrant	0.1149	1567		0.2334	1567		0.4983
1568	aberrant	0.1489	1568	aberrant	0.1381	1568		0.6449
1569	aberrant	0.2342	1569		0.2475	1569	aberrant	0.2914
1570	aberrant	0.1489	1570		0.2475	1570		0.492
1571	aberrant	0.0586	1571		0.224	1571		0.6449
1572	aberrant	0.2342	1572		0.2452	1572		0.5272
1573	aberrant	0.2342	1573		0.1656	1573		0.3296
1574	aberrant	0.2119	1574		0.1969	1574		0.3353
1575	aberrant	0.2342	1575	aberrant	0.127	1575		0.4125
1576	aberrant	0.2342	1576	aberrant	0.1165	1576		0.3353
1577	aberrant	0.1942	1577	aberrant	0.127	1577	aberrant	0.2461
1578	aberrant	0.2342	1578	aberrant	0.1218	1578		0.3223
1579		0.3128	1579	aberrant	0.1346	1579		0.3941
1580	aberrant	0.1295	1580		0.2477	1580		0.449
1581	aberrant	0.1295	1581		0.158	1581		0.5632
1582	aberrant	0.2342	1582		0.2271	1582	aberrant	0.2277
1583	aberrant	0.2396	1583		0.2477	1583		0.4502
1584	aberrant	0.2342	1584		0.1945	1584		0.492
1585	aberrant	0.2342	1585	aberrant	0.1446	1585		0.492
1586	aberrant	0.2342	1586		0.2477	1586	aberrant	0.1935
1587	aberrant	0.2092	1587		0.1945	1587	aberrant	0.2856
1588		0.2792	1588		0.2191	1588		0.3353
1589		0.2711	1589		0.1945	1589		0.5272
1590	aberrant	0.2002	1590		0.2475	1590		0.3453
1591	aberrant	0.085	1591		0.2061	1591		0.4266
1592	aberrant	0.2342	1592		0.1749	1592		0.4562
1593	aberrant	0.0223	1593		0.182	1593		0.5272
1594	aberrant	0.2046	1594	aberrant	0.1462	1594		0.5272
1595	aberrant	0.2119	1595		0.2475	1595		0.4804
1596	aberrant	0.0688	1596		0.209	1596		0.4445
1597		0.3058	1597		0.2177	1597	aberrant	0.234

1598	aberrant	0.1409	1598		0.1945	1598		0.4184
1599	aberrant	0.1453	1599	aberrant	0.127	1599		0.4184

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1600	aberrant	0.2401	1600		0.2246	1600		0.4464
1601		0.2962	1601	aberrant	0.127	1601		0.4184
1602	aberrant	0.1344	1602		0.1545	1602		0.4464
1603		0.3532	1603	aberrant	0.1066	1603		0.4464
1604	aberrant	0.1899	1604	aberrant	0.1066	1604		0.4464
1605		0.3389	1605	aberrant	0.1066	1605		0.4184
1606		0.3103	1606	aberrant	0.0713	1606		0.4184
1607	aberrant	0.2124	1607	aberrant	0.0629	1607		0.4184
1608	aberrant	0.2124	1608	aberrant	0.1066	1608		0.4184
1609	aberrant	0.2042	1609	aberrant	0.0921	1609		0.4041
1610	aberrant	0.2019	1610	aberrant	0.1066	1610		0.5396
1611	aberrant	0.1921	1611	aberrant	0.0754	1611		0.4616
1612	aberrant	0.1683	1612		0.3168	1612		0.4616
1613		0.2815	1613		0.3168	1613		0.5789
1614		0.3103	1614		0.1709	1614		0.4857
1615	aberrant	0.1142	1615		0.3168	1615		0.4616
1616		0.2581	1616		0.3168	1616		0.5396
1617	aberrant	0.2193	1617		0.3168	1617		0.4857
1618		0.2884	1618		0.3168	1618		0.5789
1619	aberrant	0.1665	1619		0.3158	1619		0.4853
1620	aberrant	0.2442	1620		0.3168	1620		0.3574
1621	aberrant	0.2048	1621		0.3168	1621		0.5057
1622	aberrant	0.1508	1622		0.3168	1622		0.5396
1623		0.3003	1623	aberrant	0.0043	1623		0.5396
1624		0.2491	1624		0.3168	1624		0.3717
1625	aberrant	0.1401	1625	aberrant	0.1348	1625		0.3475
1626		0.2993	1626	aberrant	0.1476	1626		0.3337
1627	aberrant	0.1505	1627		0.1703	1627		0.422
1628	aberrant	0.2184	1628	aberrant	0.137	1628		0.3953
1629	aberrant	0.2367	1629		0.1728	1629		0.422
1630	aberrant	0.1799	1630		0.1703	1630		0.3701
1631	aberrant	0.1508	1631		0.1815	1631		0.3717
1632		0.4936	1632		0.1815	1632		0.3184
1633		0.3347	1633		0.2144	1633		0.4233
1634		0.4815	1634		0.3988	1634		0.3717
1635		0.4907	1635		0.3988	1635		0.3717
1636		0.3837	1636		0.5231	1636		0.3337
1637		0.6517	1637		0.5231	1637		0.422
1638		0.4553	1638		0.507	1638		0.3465

1639		0.6529	1639		0.5199	1639		0.3701
1640		0.6262	1640		0.5231	1640		0.3701

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1641		0.71	1641		0.5231	1641		0.4022
1642		0.6529	1642		0.4984	1642		0.3331
1643		0.6304	1643		0.4889	1643	aberrant	0.3105
1644		0.4011	1644		0.5269	1644		0.5101
1645		0.3336	1645		0.4938	1645		0.6449
1646		0.3622	1646		0.5039	1646		0.6449
1647		0.572	1647		0.5085	1647		0.6449
1648		0.4299	1648		0.5231	1648		0.5649
1649		0.71	1649		0.5269	1649		0.6449
1650		0.71	1650		0.5231	1650		0.6002
1651		0.5628	1651		0.4917	1651		0.4902
1652		0.474	1652		0.4874	1652	aberrant	0.1422
1653	aberrant	0.0723	1653		0.5269	1653	aberrant	0.2405
1654	aberrant	0.1167	1654		0.4568	1654		0.5647
1655	aberrant	0.0515	1655		0.3937	1655		0.5232
1656	aberrant	0.0719	1656		0.402	1656		0.5518
1657	aberrant	0.0732	1657		0.4114	1657		0.5461
1658		0.2663	1658		0.4205	1658		0.531
1659	aberrant	-0.1793	1659		0.3937	1659		0.5461
1660		0.5791	1660		0.4189	1660		0.5666
1661		0.2826	1661		0.3882	1661		0.551
1662		0.3118	1662		0.4137	1662	aberrant	0.2918
1663		0.3118	1663		0.4793	1663		0.5037
1664		0.2464	1664		0.4154	1664		0.3446
1665		0.3147	1665		0.3937	1665		0.4542
1666		0.3632	1666		0.3937	1666		0.5546
1667		0.7225	1667		0.5298	1667	aberrant	0.3006
1668		0.7225	1668		0.4176	1668		0.5058
1669		0.7225	1669		0.4115	1669		0.4579
1670		0.7225	1670		0.446	1670		0.3346
1671		0.7225	1671		0.3937	1671		0.3994
1672		0.7225	1672		0.2607	1672		0.5125
1673		0.7225	1673		0.1721	1673		0.5146
1674		0.7225	1674		0.1812	1674		0.5546
1675		0.7135	1675		0.2255	1675		0.5546
1676		0.7225	1676		0.3122	1676		0.3574
1677		0.7225	1677		0.2943	1677		0.5521
1678		0.5627	1678		0.2582	1678		0.4578
1679		0.7225	1679		0.275	1679		0.4392

1680		0.5627	1680		0.3122	1680		0.3843
1681		0.5485	1681		0.3122	1681		0.5147

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1682		0.7225	1682		0.2823	1682		0.5613
1683		0.5085	1683		0.3757	1683		0.3551
1684		0.5085	1684		0.2599	1684		0.5546
1685		0.5085	1685		0.1523	1685		0.5546
1686		0.4851	1686		0.3122	1686		0.433
1687		0.4879	1687		0.2797	1687		0.4347
1688		0.4277	1688		0.3122	1688		0.4701
1689		0.4799	1689		0.3122	1689		0.5133
1690		0.5085	1690		0.2582	1690		0.5365
1691		0.6896	1691		0.3122	1691		0.5201
1692		0.6896	1692		0.2556	1692		0.5092
1693		0.6896	1693		0.3122	1693		0.5546
1694		0.6896	1694		0.3122	1694		0.4818
1695		0.71	1695		0.2255	1695		0.3116
1696		0.71	1696		0.2582	1696		0.4729
1697		0.71	1697		0.2582	1697		0.4745
1698		0.3847	1698		0.2449	1698		0.6036
1699		0.5338	1699		0.2474	1699		0.5546
1700		0.71	1700		0.2599	1700		0.6065
1701		0.71	1701		0.3367	1701		0.5546
1702	aberrant	0.1294	1702		0.2882	1702		0.5075
1703	aberrant	0.1294	1703		0.3367	1703		0.5928
1704	aberrant	0.1975	1704		0.3122	1704		0.5861
1705	aberrant	0.1975	1705		0.254	1705		0.5546
1706	aberrant	0.1483	1706		0.3122	1706		0.5092
1707	aberrant	0.1083	1707		0.2582	1707		0.5558
1708	aberrant	0.1294	1708		0.3122	1708	aberrant	0.1971
1709	aberrant	0.1294	1709		0.2582	1709		0.5796
1710	aberrant	0.1294	1710		0.3122	1710		0.3592
1711	aberrant	0.1083	1711		0.3122	1711		0.5323
1712	aberrant	0.1637	1712		0.3122	1712		0.4211
1713	aberrant	0.1637	1713		0.3122	1713	aberrant	0.2767
1714	aberrant	0.1637	1714		0.3122	1714		0.4793
1715	aberrant	0.1637	1715		0.2911	1715		0.5081
1716	aberrant	0.1637	1716		0.3268	1716		0.4852
1717	aberrant	0.1294	1717		0.3122	1717		0.3875
1718		0.4766	1718		0.2582	1718		0.4808
1719		0.5532	1719		0.2582	1719		0.5597
1720		0.5513	1720		0.2255	1720		0.5144

1721		0.5812	1721	aberrant	0.1404	1721	aberrant	0.3075
1722		0.5862	1722		0.2797	1722		0.3237

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1723		0.4319	1723		0.2255	1723		0.3906
1724		0.5532	1724		0.3122	1724		0.6449
1725		0.4319	1725		0.5343	1725		0.6449
1726		0.3048	1726		0.5111	1726		0.6449
1727		0.3048	1727		0.5343	1727		0.5829
1728		0.3048	1728		0.5168	1728		0.611
1729		0.3646	1729		0.5343	1729		0.5874
1730		0.3646	1730		0.5343	1730		0.5201
1731		0.3646	1731		0.5343	1731		0.6449
1732		0.2768	1732		0.5343	1732		0.5716
1733		0.3235	1733		0.5343	1733		0.6449
1734		0.3235	1734		0.5343	1734		0.5874
1735		0.324	1735		0.5343	1735		0.5475
1736		0.4872	1736	aberrant	0.1483	1736		0.6449
1737		0.2944	1737	aberrant	0.1348	1737		0.5874
1738		0.2849	1738	aberrant	0.1348	1738		0.6449
1739	aberrant	0.23	1739	aberrant	0.1242	1739		0.5853
1740		0.3235	1740		0.3705	1740		0.4851
1741		0.3235	1741		0.3501	1741		0.6449
1742		0.3235	1742		0.2286	1742		0.6449
1743		0.3717	1743		0.2286	1743		0.6449
1744		0.3235	1744		0.2286	1744		0.6449
1745		0.3235	1745		0.2286	1745		0.6449
1746		0.3235	1746		0.2286	1746		0.5872
1747		0.3235	1747		0.2286	1747		0.5874
1748		0.3313	1748		0.2286	1748		0.6449
1749		0.3235	1749		0.4862	1749		0.5712
1750		0.3235	1750		0.4816	1750		0.5723
1751		0.3128	1751		0.4816	1751		0.6449
1752		0.3235	1752		0.4158	1752		0.5666
1753		0.3042	1753		0.4816	1753		0.5716
1754		0.3235	1754		0.4816	1754		0.573
1755		0.3116	1755		0.4816	1755		0.6449
1756		0.3717	1756		0.4158	1756		0.6449
1757		0.3235	1757		0.4816	1757		0.6449
1758		0.3081	1758		0.4816	1758		0.6449
1759		0.3936	1759		0.4256	1759		0.5953
1760		0.3235	1760		0.4816	1760		0.5953
1761		0.3235	1761		0.4816	1761		0.5494

1762	aberrant	0.2419	1762		0.3962	1762		0.5614
1763	aberrant	0.2204	1763		0.4816	1763		0.5538

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1764		0.6482	1764		0.4816	1764		0.4846
1765		0.6037	1765		0.4816	1765	aberrant	0.2345
1766		0.71	1766		0.4072	1766		0.4064
1767		0.6559	1767		0.4072	1767		0.4424
1768		0.71	1768		0.399	1768		0.4208
1769		0.71	1769		0.2969	1769		0.3218
1770		0.4406	1770		0.3033	1770		0.4932
1771		0.5616	1771		0.354	1771	aberrant	0.3003
1772		0.6559	1772		0.4322	1772		0.4915
1773		0.4718	1773		0.4477	1773		0.5265
1774		0.71	1774		0.5111	1774		0.4167
1775		0.6237	1775		0.3871	1775		0.4851
1776		0.6482	1776		0.3173	1776		0.5405
1777		0.71	1777		0.1595	1777		0.4394
1778		0.5871	1778		0.5111	1778		0.5421
1779		0.71	1779		0.5111	1779		0.4017
1780		0.5871	1780		0.2897	1780		0.371
1781		0.6327	1781		0.3541	1781		0.4291
1782		0.7225	1782		0.3634	1782		0.4313
1783		0.6327	1783		0.3826	1783		0.5532
1784		0.6327	1784		0.3658	1784		0.5076
1785		0.6377	1785		0.2969	1785		0.5953
1786		0.7225	1786		0.3173	1786		0.5496
1787		0.6327	1787	aberrant	0.0892	1787		0.5096
1788		0.6327	1788		0.2519	1788		0.5953
1789		0.5717	1789		0.3325	1789		0.5893
1790		0.6327	1790		0.3222	1790		0.6449
1791		0.6327	1791		0.4528	1791		0.5882
1792		0.6327	1792		0.357	1792		0.5855
1793		0.6327	1793		0.2969	1793		0.6425
1794		0.6377	1794		0.2508	1794		0.6144
1795		0.6327	1795		0.3671	1795		0.5932
1796		0.2529	1796		0.4477	1796		0.5567
1797		0.3089	1797		0.3114	1797		0.5857
1798		0.3089	1798		0.4072	1798		0.5467
1799		0.2529	1799		0.3033	1799		0.5348
1800		0.2529	1800		0.2479	1800		0.4959
1801		0.2529	1801		0.3047	1801		0.57
1802		0.2529	1802	aberrant	0.0892	1802		0.6086

1803		0.2529	1803		0.4199	1803		0.4087
1804		0.3571	1804		0.2951	1804		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1805		0.2529	1805		0.315	1805		0.6261
1806		0.2529	1806		0.1978	1806		0.42
1807		0.245	1807		0.3033	1807		0.6449
1808		0.2866	1808		0.4199	1808		0.6449
1809		0.2529	1809		0.2752	1809		0.6449
1810		0.2529	1810		0.2306	1810		0.5097
1811		0.71	1811		0.5343	1811		0.3695
1812		0.5759	1812		0.3651	1812		0.6004
1813		0.71	1813		0.2526	1813		0.6449
1814		0.71	1814		0.3159	1814		0.6111
1815		0.643	1815		0.3986	1815		0.6449
1816		0.3571	1816		0.3033	1816		0.396
1817		0.71	1817		0.4658	1817		0.5174
1818		0.71	1818		0.5111	1818		0.4643
1819		0.71	1819		0.4072	1819		0.5251
1820		0.71	1820		0.2969	1820		0.5907
1821		0.71	1821		0.3173	1821		0.6449
1822		0.71	1822		0.315	1822		0.4799
1823		0.71	1823		0.1595	1823		0.6449
1824		0.643	1824	aberrant	0.1157	1824		0.6449
1825		0.71	1825	aberrant	0.1157	1825		0.5953
1826		0.5759	1826	aberrant	0.0937	1826		0.6449
1827		0.71	1827	aberrant	0.0937	1827		0.6178
1828		0.71	1828	aberrant	0.0937	1828		0.6449
1829		0.3646	1829		0.5111	1829		0.5999
1830		0.2505	1830		0.5074	1830		0.5945
1831		0.2704	1831		0.4696	1831		0.5252
1832		0.3646	1832		0.5111	1832		0.6449
1833	aberrant	0.2204	1833	aberrant	0.1157	1833		0.5286
1834		0.2704	1834	aberrant	0.1157	1834		0.6449
1835		0.2704	1835		0.5111	1835		0.5042
1836		0.3314	1836		0.3605	1836		0.5791
1837	aberrant	0.2204	1837	aberrant	0.0793	1837		0.4102
1838		0.3646	1838	aberrant	0.0693	1838		0.3984
1839		0.3646	1839	aberrant	0.1052	1839		0.53
1840		0.2704	1840		0.4816	1840		0.4525
1841		0.2704	1841		0.2567	1841		0.3555
1842		0.3646	1842		0.3454	1842		0.3947
1843		0.3646	1843	aberrant	-0.1126	1843		0.5287

1844		0.3646	1844		0.4142	1844		0.3925
1845		0.3099	1845	aberrant	0.0793	1845		0.5287

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1846		0.3578	1846	aberrant	0.0605	1846		0.5162
1847		0.2704	1847		0.1965	1847		0.6449
1848		0.3646	1848	aberrant	0.0793	1848	aberrant	0.3097
1849		0.3646	1849	aberrant	0.0793	1849		0.5775
1850		0.3646	1850		0.2614	1850		0.5936
1851		0.2704	1851		0.2984	1851		0.6449
1852		0.3646	1852	aberrant	0.0793	1852		0.6721
1853		0.3646	1853	aberrant	0.0793	1853		0.5482
1854		0.3805	1854		0.4045	1854		0.6099
1855		0.3646	1855	aberrant	0.0939	1855		0.5517
1856		0.2704	1856		0.3899	1856		0.59
1857		0.3646	1857	aberrant	0.0605	1857		0.6449
1858		0.2704	1858	aberrant	0.046	1858		0.6004
1859	aberrant	0.2058	1859	aberrant	0.0793	1859		0.6449
1860	aberrant	0.2058	1860	aberrant	0.0549	1860		0.5857
1861	aberrant	0.0819	1861	aberrant	0.0693	1861		0.5861
1862	aberrant	0.1468	1862	aberrant	0.0992	1862		0.6449
1863	aberrant	0.2058	1863	aberrant	0.0648	1863		0.6323
1864	aberrant	0.2058	1864	aberrant	0.0386	1864		0.6721
1865	aberrant	0.2058	1865	aberrant	0.1052	1865		0.6449
1866	aberrant	0.2058	1866	aberrant	0.0087	1866		0.6449
1867	aberrant	0.2058	1867	aberrant	0.0701	1867		0.5936
1868	aberrant	0.2058	1868		0.3706	1868		0.4881
1869		0.3262	1869		0.2803	1869		0.6721
1870	aberrant	0.1849	1870		0.3378	1870		0.6449
1871		0.4627	1871		0.2609	1871		0.6449
1872		0.4627	1872	aberrant	0.0529	1872		0.6323
1873		0.3935	1873		0.1825	1873		0.6002
1874		0.3935	1874	aberrant	0.066	1874		0.5451
1875		0.3935	1875	aberrant	0.066	1875		0.59
1876		0.3935	1876		0.3335	1876		0.6449
1877		0.3646	1877	aberrant	0.0793	1877		0.4853
1878	aberrant	0.1582	1878		0.3526	1878		0.5927
1879		0.3646	1879	aberrant	0.1093	1879		0.5452
1880		0.3646	1880		0.2529	1880		0.5051
1881		0.3141	1881	aberrant	-0.0676	1881		0.3655
1882		0.3646	1882		0.3335	1882		0.4621
1883		0.3646	1883	aberrant	0.0693	1883		0.3264
1884		0.3646	1884	aberrant	0.0693	1884	aberrant	0.1377

1885		0.3343	1885		0.3335	1885		0.5401
1886		0.3343	1886		0.3526	1886		0.4559

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1887		0.3646	1887	aberrant	0.0693	1887	aberrant	0.2322
1888	aberrant	0.2424	1888	aberrant	0.0835	1888		0.4852
1889		0.3646	1889	aberrant	0.0701	1889		0.3387
1890		0.3343	1890		0.2248	1890		0.313
1891		0.3646	1891	aberrant	0.0338	1891		0.5354
1892		0.3646	1892	aberrant	0.0701	1892		0.4222
1893		0.3628	1893	aberrant	0.0701	1893		0.4796
1894		0.3646	1894	aberrant	0.0022	1894		0.5116
1895		0.3646	1895	aberrant	0.0793	1895		0.3528
1896		0.2997	1896		0.2248	1896	aberrant	0.1048
1897	aberrant	0.2217	1897	aberrant	0.0793	1897		0.3236
1898		0.3054	1898		0.3526	1898		0.4847
1899		0.3646	1899		0.2092	1899		0.5213
1900		0.3646	1900	aberrant	0.1343	1900		0.5327
1901		0.3646	1901		0.1815	1901		0.4879
1902		0.3646	1902		0.1632	1902		0.496
1903		0.3646	1903		0.1638	1903		0.5344
1904		0.3163	1904		0.1815	1904		0.458
1905		0.3646	1905		0.1815	1905		0.4782
1906		0.3378	1906		0.1815	1906		0.5422
1907		0.3514	1907		0.1815	1907		0.5474
1908		0.3646	1908		0.1815	1908		0.6449
1909		0.3646	1909		0.1815	1909		0.3712
1910		0.3646	1910		0.1815	1910	aberrant	0.2627
1911		0.3646	1911		0.1815	1911		0.516
1912		0.3141	1912		0.1815	1912		0.4992
1913		0.3646	1913		0.1815	1913		0.4277
1914		0.3163	1914		0.1815	1914		0.36
1915		0.3646	1915		0.1815	1915	aberrant	0.0659
1916		0.3646	1916		0.1825	1916		0.6449
1917		0.3646	1917		0.1815	1917		0.6449
1918		0.2541	1918		0.1815	1918		0.4641
1919		0.3646	1919		0.1815	1919	aberrant	0.2503
1920		0.3205	1920		0.1815	1920		0.4563
1921		0.3646	1921		0.1815	1921		0.4335
1922		0.3646	1922		0.1815	1922	aberrant	0.1158
1923		0.3163	1923		0.1815	1923		0.3529
1924		0.71	1924		0.1815	1924		0.4124
1925		0.71	1925		0.1815	1925		0.402

1926		0.4988	1926		0.1815	1926		0.4622
1927		0.5041	1927		0.1815	1927	aberrant	0.2844

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1928		0.5175	1928		0.1815	1928		0.514
1929		0.4748	1929		0.1815	1929		0.5503
1930		0.65	1930		0.1815	1930		0.4087
1931		0.5185	1931		0.1815	1931	aberrant	0.3035
1932		0.71	1932		0.1815	1932		0.3307
1933		0.71	1933		0.1815	1933	aberrant	0.307
1934		0.4468	1934		0.1815	1934	aberrant	0.3068
1935		0.669	1935		0.1815	1935		0.3503
1936		0.71	1936		0.1815	1936		0.3311
1937		0.71	1937		0.1815	1937		0.3307
1938		0.71	1938		0.1815	1938		0.3283
1939		0.71	1939		0.1815	1939		0.541
1940		0.71	1940		0.1815	1940	aberrant	0.2727
1941		0.5185	1941		0.1907	1941		0.5885
1942		0.3669	1942		0.1907	1942		0.3273
1943		0.3669	1943		0.1815	1943		0.5119
1944		0.3669	1944		0.1815	1944	aberrant	0.3105
1945		0.3669	1945		0.1815	1945		0.5641
1946		0.2615	1946		0.1815	1946		0.4764
1947		0.2682	1947		0.1788	1947		0.5047
1948		0.3291	1948		0.1815	1948		0.5098
1949		0.71	1949		0.1815	1949		0.5235
1950		0.71	1950		0.1825	1950		0.4373
1951		0.71	1951		0.1815	1951		0.4776
1952		0.71	1952		0.1815	1952		0.4086
1953		0.71	1953		0.2556	1953		0.4158
1954		0.71	1954		0.3657	1954		0.445
1955		0.71	1955		0.3281	1955		0.4762
1956		0.71	1956		0.3055	1956		0.4565
1957		0.71	1957		0.3657	1957		0.5098
1958		0.71	1958		0.3055	1958		0.4983
1959		0.71	1959		0.3657	1959		0.3944
1960		0.71	1960		0.3657	1960		0.4829
1961		0.71	1961		0.3055	1961		0.5098
1962		0.71	1962		0.3657	1962		0.445
1963		0.71	1963		0.303	1963		0.4585
1964		0.71	1964		0.2447	1964		0.5214
1965		0.71	1965		0.2494	1965		0.4067
1966		0.71	1966		0.2796	1966		0.503

1967		0.71	1967		0.2342	1967		0.4777
1968		0.71	1968		0.1944	1968		0.4261

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
1969		0.71	1969		0.2342	1969		0.4964
1970		0.71	1970		0.3055	1970		0.4605
1971		0.71	1971		0.2342	1971		0.549
1972		0.5628	1972		0.266	1972		0.5021
1973		0.71	1973		0.2694	1973		0.5074
1974		0.71	1974		0.1793	1974		0.5021
1975		0.71	1975		0.276	1975		0.3209
1976		0.3563	1976		0.266	1976		0.4555
1977		0.3563	1977		0.2796	1977		0.4641
1978		0.3563	1978		0.2271	1978		0.5098
1979		0.3563	1979		0.3657	1979		0.4719
1980		0.3563	1980		0.3055	1980		0.4799
1981		0.7225	1981		0.4258	1981		0.4443
1982		0.7225	1982		0.3055	1982		0.4845
1983		0.5555	1983		0.3657	1983		0.5098
1984		0.7225	1984		0.2057	1984		0.4413
1985		0.71	1985		0.2396	1985		0.5021
1986		0.6716	1986		0.3055	1986		0.4916
1987		0.71	1987		0.3069	1987		0.3978
1988		0.71	1988		0.3055	1988		0.4314
1989		0.71	1989		0.3657	1989		0.3209
1990		0.71	1990		0.1553	1990		0.4607
1991		0.71	1991		0.2734	1991		0.489
1992		0.71	1992		0.3657	1992		0.5098
1993		0.71	1993		0.3055	1993		0.436
1994		0.71	1994		0.1553	1994		0.5841
1995		0.71	1995		0.3055	1995		0.6449
1996		0.71	1996		0.3657	1996		0.5635
1997		0.71	1997		0.3657	1997		0.4034
1998		0.71	1998		0.3055	1998		0.567
1999		0.5628	1999		0.3055	1999		0.6144
2000		0.5502	2000		0.3657	2000	aberrant	0.1499
2001		0.71	2001		0.3055	2001		0.4476
2002		0.71	2002		0.1946	2002		0.5496
2003		0.5832	2003		0.3055	2003	aberrant	0.2644
2004		0.71	2004		0.3657	2004	aberrant	0.2415
2005		0.71	2005		0.3055	2005		0.6449
2006		0.71	2006		0.3055	2006		0.5855
2007		0.6896	2007		0.2494	2007		0.5418

2008		0.6896	2008		0.2679	2008		0.6425
2009	aberrant	0.1052	2009		0.3055	2009		0.4143

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2010		0.6447	2010		0.1767	2010		0.6449
2011	aberrant	0.0953	2011		0.2796	2011		0.5827
2012		0.6896	2012	aberrant	0.1435	2012		0.6449
2013		0.5405	2013		0.2796	2013		0.6449
2014		0.6896	2014		0.1793	2014		0.6042
2015		0.6896	2015		0.2061	2015		0.4282
2016		0.6896	2016	aberrant	0.1292	2016		0.5246
2017		0.2997	2017		0.4258	2017		0.3909
2018		0.3571	2018		0.3657	2018		0.4156
2019		0.4124	2019		0.2775	2019		0.5505
2020		0.3251	2020		0.3657	2020		0.4282
2021		0.3646	2021		0.3657	2021		0.5296
2022		0.3646	2022		0.2442	2022		0.4536
2023		0.3646	2023		0.276	2023		0.5919
2024		0.3646	2024		0.2785	2024		0.4645
2025		0.3646	2025		0.2435	2025		0.6197
2026		0.3646	2026		0.3214	2026	aberrant	0.263
2027		0.3646	2027		0.3055	2027		0.4269
2028		0.4697	2028	aberrant	0.1347	2028		0.4637
2029		0.71	2029	aberrant	0.1216	2029		0.3391
2030		0.71	2030	aberrant	0.1315	2030		0.5786
2031		0.71	2031	aberrant	0.081	2031		0.3261
2032		0.71	2032	aberrant	0.1216	2032		0.3457
2033		0.6435	2033	aberrant	0.1216	2033		0.564
2034		0.6435	2034		0.5343	2034	aberrant	0.213
2035		0.3252	2035		0.5343	2035		0.4269
2036	aberrant	0.1981	2036		0.5343	2036		0.3893
2037		0.2462	2037		0.5343	2037		0.3893
2038		0.2772	2038		0.4948	2038		0.4269
2039		0.2772	2039		0.5343	2039		0.505
2040		0.2772	2040		0.5343	2040		0.3797
2041		0.2772	2041		0.4941	2041		0.445
2042		0.3948	2042		0.5131	2042		0.3457
2043		0.3948	2043		0.5111	2043		0.4252
2044		0.3948	2044		0.5343	2044		0.4617
2045		0.3948	2045		0.5343	2045		0.4181
2046		0.3948	2046		0.5343	2046		0.4717
2047		0.3948	2047		0.5343	2047		0.445
2048		0.3948	2048		0.4961	2048		0.6449

2049		0.3948	2049		0.5054	2049		0.4181
2050		0.3948	2050		0.5054	2050		0.4081

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2051		0.3948	2051		0.5343	2051		0.5065
2052		0.3789	2052		0.4961	2052		0.3936
2053		0.3948	2053		0.4961	2053		0.5118
2054	aberrant	0.2424	2054		0.4942	2054		0.4872
2055		0.5197	2055		0.4942	2055		0.4764
2056		0.6556	2056		0.4752	2056		0.4464
2057		0.6516	2057		0.4942	2057		0.6449
2058		0.6516	2058		0.4752	2058		0.51
2059		0.6516	2059		0.4752	2059		0.4008
2060		0.6516	2060		0.4942	2060		0.5873
2061		0.6516	2061		0.4961	2061		0.4989
2062		0.6516	2062		0.4961	2062		0.4737
2063		0.5733	2063		0.1522	2063		0.5077
2064		0.3706	2064		0.1682	2064		0.4066
2065		0.6556	2065		0.1682	2065		0.3894
2066		0.3882	2066	aberrant	0.1132	2066		0.4366
2067		0.5733	2067		0.1682	2067		0.4036
2068		0.3473	2068	aberrant	0.1248	2068		0.3404
2069		0.2997	2069		0.1682	2069		0.4744
2070		0.4151	2070		0.1682	2070		0.3713
2071		0.2997	2071		0.1682	2071	aberrant	0.2961
2072		0.4873	2072	aberrant	0.1132	2072		0.6449
2073		0.3571	2073		0.1682	2073		0.3691
2074		0.2959	2074	aberrant	0.1132	2074		0.4787
2075		0.2959	2075	aberrant	0.142	2075		0.3354
2076		0.4943	2076		0.1682	2076		0.3577
2077		0.3094	2077		0.1682	2077	aberrant	0.3086
2078		0.4943	2078		0.1682	2078		0.5102
2079		0.3287	2079		0.1682	2079		0.3638
2080		0.4873	2080		0.1891	2080		0.5996
2081		0.3461	2081		0.1891	2081		0.3432
2082		0.3989	2082		0.5123	2082		0.5539
2083		0.2959	2083		0.4807	2083		0.6054
2084		0.3571	2084		0.4934	2084		0.4901
2085		0.3571	2085		0.1798	2085		0.4866
2086		0.4873	2086		0.2192	2086		0.4542
2087		0.5085	2087		0.2192	2087		0.5094
2088	aberrant	0.0694	2088	aberrant	0.1288	2088		0.5603
2089		0.3338	2089	aberrant	0.1506	2089		0.4465

2090		0.3571	2090	aberrant	0.1216	2090		0.6123
2091		0.272	2091	aberrant	0.1506	2091		0.4591

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2092		0.3571	2092		0.2017	2092		0.5468
2093		0.3571	2093		0.229	2093		0.4691
2094		0.3571	2094		0.1601	2094		0.4348
2095		0.2959	2095		0.1826	2095		0.3718
2096		0.2959	2096		0.216	2096		0.5079
2097		0.3571	2097	aberrant	0.119	2097		0.5775
2098		0.4244	2098		0.216	2098		0.512
2099		0.3571	2099		0.2147	2099		0.3546
2100		0.4	2100		0.2147	2100		0.3718
2101		0.3571	2101		0.3085	2101		0.5775
2102		0.2959	2102	aberrant	0.1343	2102		0.5775
2103		0.2959	2103		0.2692	2103		0.5953
2104		0.2608	2104		0.1685	2104		0.5681
2105		0.4151	2105		0.1745	2105		0.5114
2106		0.2959	2106		0.1677	2106		0.5396
2107		0.4279	2107		0.2461	2107		0.3981
2108		0.2959	2108		0.3085	2108	aberrant	0.2975
2109		0.2959	2109	aberrant	0.1201	2109		0.6281
2110		0.2959	2110		0.3168	2110		0.5396
2111		0.4244	2111	aberrant	0.0904	2111		0.3714
2112		0.2959	2112	aberrant	0.0904	2112		0.4529
2113		0.2959	2113	aberrant	0.0904	2113		0.4203
2114		0.2959	2114	aberrant	0.0904	2114		0.3629
2115		0.2959	2115		0.496	2115		0.5396
2116		0.2959	2116		0.496	2116		0.5396
2117		0.4111	2117		0.4911	2117		0.483
2118		0.4151	2118		0.4732	2118		0.5124
2119		0.3435	2119		0.4911	2119		0.4835
2120		0.3571	2120		0.496	2120		0.5396
2121		0.3571	2121		0.2577	2121		0.5396
2122		0.2997	2122		0.2098	2122		0.5396
2123		0.4873	2123		0.2098	2123		0.4614
2124		0.3571	2124		0.2577	2124		0.5396
2125		0.3571	2125		0.2577	2125		0.4867
2126		0.3162	2126		0.2577	2126		0.438
2127		0.3407	2127	aberrant	0.1199	2127		0.5396
2128		0.4899	2128		0.2328	2128	aberrant	0.2602
2129		0.3571	2129		0.2577	2129		0.5396
2130		0.2997	2130		0.1619	2130		0.5396

2131		0.2997	2131		0.202	2131		0.5396
2132		0.3571	2132	aberrant	0.1199	2132	aberrant	0.2861

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2133		0.2997	2133		0.1891	2133		0.5396
2134		0.3571	2134		0.2533	2134	aberrant	0.2856
2135		0.2951	2135		0.2322	2135		0.4254
2136		0.3571	2136		0.2098	2136	aberrant	0.2069
2137		0.4244	2137		0.2322	2137	aberrant	0.3084
2138		0.3571	2138		0.2686	2138	aberrant	0.2787
2139		0.3571	2139		0.202	2139		0.3853
2140		0.3571	2140		0.2322	2140		0.3246
2141		0.3571	2141		0.2577	2141		0.5396
2142		0.3571	2142		0.2322	2142		0.5396
2143		0.4873	2143		0.2098	2143		0.4949
2144		0.2951	2144		0.202	2144		0.4998
2145		0.3571	2145		0.2697	2145		0.5396
2146		0.3571	2146		0.2577	2146		0.5396
2147		0.2577	2147		0.2577	2147		0.5396
2148		0.3162	2148		0.2577	2148		0.5396
2149		0.469	2149		0.4816	2149		0.4609
2150		0.2644	2150		0.3679	2150		0.5396
2151		0.2518	2151		0.4002	2151		0.5154
2152		0.3851	2152		0.4816	2152		0.5396
2153		0.3571	2153		0.4816	2153		0.4457
2154		0.3571	2154		0.4816	2154		0.3981
2155		0.3571	2155		0.4826	2155		0.4406
2156		0.3571	2156		0.4901	2156		0.3981
2157		0.5979	2157		0.4901	2157		0.4585
2158		0.6874	2158		0.4002	2158		0.4975
2159		0.3178	2159		0.4816	2159	aberrant	0.2425
2160		0.2485	2160		0.4002	2160		0.5256
2161		0.3935	2161		0.4002	2161		0.5083
2162		0.3935	2162		0.4085	2162		0.478
2163		0.3935	2163		0.4816	2163		0.4585
2164		0.3935	2164		0.4816	2164		0.5342
2165	aberrant	0.234	2165		0.4816	2165		0.4444
2166	aberrant	0.234	2166		0.4122	2166		0.5953
2167		0.3935	2167		0.4816	2167		0.5215
2168	aberrant	0.234	2168		0.4122	2168		0.6449
2169		0.3268	2169		0.1821	2169		0.5953
2170		0.3935	2170		0.1821	2170		0.5617
2171	aberrant	0.2424	2171		0.1821	2171		0.6161

2172	aberrant	0.2424	2172		0.1629	2172		0.35
2173		0.2997	2173		0.1889	2173		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2174	aberrant	0.2424	2174		0.2461	2174		0.6449
2175		0.3692	2175	aberrant	0.1506	2175		0.5808
2176		0.3075	2176		0.1542	2176		0.4662
2177		0.2704	2177		0.2376	2177		0.3514
2178		0.3692	2178		0.1821	2178		0.5273
2179		0.3646	2179		0.1821	2179		0.6449
2180		0.3692	2180		0.1821	2180		0.4573
2181		0.3692	2181		0.3212	2181		0.6449
2182		0.3204	2182		0.326	2182		0.5037
2183		0.3571	2183		0.326	2183		0.429
2184		0.3779	2184		0.328	2184		0.5514
2185		0.3571	2185		0.326	2185	aberrant	0.2668
2186		0.4186	2186		0.2673	2186		0.4618
2187		0.3535	2187		0.326	2187		0.4825
2188		0.3788	2188		0.3212	2188		0.55
2189		0.3318	2189		0.326	2189		0.4847
2190		0.2691	2190		0.326	2190		0.5662
2191		0.2557	2191		0.326	2191		0.6301
2192		0.263	2192		0.5343	2192		0.4782
2193		0.71	2193		0.481	2193		0.5514
2194		0.71	2194		0.4792	2194		0.5464
2195		0.2997	2195		0.4792	2195		0.5014
2196		0.2997	2196		0.5343	2196		0.6094
2197		0.2997	2197		0.4987	2197		0.6276
2198		0.2676	2198		0.4397	2198		0.5303
2199		0.3571	2199		0.4769	2199		0.6276
2200		0.3571	2200		0.5343	2200		0.6449
2201		0.3571	2201		0.4715	2201		0.5872
2202		0.3571	2202		0.4484	2202		0.5926
2203		0.3646	2203		0.5343	2203		0.5775
2204		0.2532	2204	aberrant	0.0897	2204		0.5885
2205		0.3237	2205	aberrant	0.1157	2205		0.6449
2206		0.3646	2206	aberrant	0.1157	2206		0.6449
2207		0.2493	2207	aberrant	0.1157	2207		0.6449
2208		0.4039	2208		0.1771	2208		0.6449
2209		0.397	2209	aberrant	0.1157	2209		0.6449
2210		0.3646	2210	aberrant	0.0897	2210		0.5391
2211		0.249	2211	aberrant	0.1319	2211		0.6276
2212		0.3646	2212	aberrant	0.1174	2212		0.6449

2213		0.2565	2213		0.2484	2213		0.5953
2214		0.3237	2214	aberrant	0.1255	2214		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2215		0.3646	2215		0.2704	2215		0.5953
2216		0.3054	2216	aberrant	0.1255	2216		0.6449
2217		0.3237	2217	aberrant	0.117	2217		0.5248
2218		0.3237	2218	aberrant	0.1421	2218		0.6449
2219		0.3237	2219		0.3168	2219		0.5503
2220		0.3653	2220	aberrant	0.0877	2220		0.5953
2221		0.3646	2221		0.3168	2221		0.5579
2222	aberrant	0.0021	2222	aberrant	0.0877	2222		0.5071
2223	aberrant	0.0021	2223		0.1669	2223		0.5839
2224		0.6896	2224		0.1669	2224		0.5953
2225		0.4039	2225		0.5182	2225		0.5781
2226		0.3184	2226		0.5343	2226		0.6449
2227		0.71	2227		0.5182	2227		0.5878
2228		0.345	2228		0.5	2228		0.4423
2229		0.3208	2229		0.491	2229		0.5123
2230		0.71	2230		0.491	2230		0.5953
2231		0.2769	2231		0.5343	2231		0.5936
2232		0.71	2232		0.5182	2232		0.6449
2233		0.2605	2233		0.5343	2233		0.6449
2234	aberrant	0.2425	2234		0.5343	2234		0.5357
2235		0.2994	2235		0.5343	2235		0.5953
2236	aberrant	0.2266	2236		0.5343	2236		0.5431
2237	aberrant	0.1276	2237		0.5271	2237		0.5146
2238	aberrant	0.1858	2238		0.2788	2238		0.5878
2239		0.6896	2239		0.5343	2239		0.469
2240		0.6218	2240		0.5	2240		0.4756
2241		0.71	2241		0.5343	2241		0.5953
2242		0.71	2242		0.5343	2242		0.5527
2243		0.71	2243		0.5343	2243		0.5004
2244		0.71	2244		0.5271	2244		0.5121
2245		0.6874	2245		0.5182	2245		0.6449
2246		0.6491	2246		0.5343	2246		0.4763
2247		0.6032	2247		0.5343	2247		0.4847
2248		0.6896	2248		0.5343	2248		0.3998
2249		0.6491	2249		0.4684	2249		0.5953
2250		0.71	2250		0.3168	2250		0.526
2251		0.6544	2251		0.1626	2251		0.4233
2252		0.6896	2252	aberrant	0.1172	2252		0.4233
2253		0.6874	2253		0.1684	2253		0.4337

2254		0.5589	2254	aberrant	0.1001	2254		0.4233
2255		0.5565	2255	aberrant	0.095	2255		0.4877

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2256		0.71	2256	aberrant	0.1075	2256		0.5885
2257		0.71	2257	aberrant	0.0448	2257		0.6449
2258		0.6874	2258	aberrant	0.1001	2258		0.5291
2259		0.5922	2259	aberrant	0.1075	2259		0.4219
2260		0.71	2260		0.1684	2260		0.4233
2261		0.6896	2261	aberrant	0.1172	2261		0.4233
2262		0.6896	2262	aberrant	0.1172	2262		0.6202
2263		0.71	2263	aberrant	0.1317	2263		0.414
2264		0.6896	2264	aberrant	0.1317	2264		0.573
2265		0.71	2265	aberrant	0.1172	2265		0.4233
2266		0.71	2266	aberrant	0.1033	2266		0.4233
2267	aberrant	0.0021	2267		0.1684	2267		0.5475
2268	aberrant	-0.027	2268		0.2636	2268		0.5529
2269		0.4086	2269		0.2951	2269		0.5069
2270		0.3932	2270		0.2951	2270		0.6449
2271		0.71	2271		0.2974	2271		0.6449
2272		0.71	2272		0.2951	2272		0.6449
2273		0.71	2273		0.2974	2273		0.4548
2274		0.5925	2274		0.235	2274		0.6449
2275		0.5925	2275		0.2951	2275		0.59
2276		0.71	2276		0.2347	2276		0.6449
2277		0.71	2277		0.2951	2277		0.3912
2278		0.71	2278		0.2494	2278		0.5165
2279		0.71	2279		0.2951	2279		0.6449
2280		0.5925	2280		0.2951	2280		0.5621
2281		0.6896	2281		0.2951	2281		0.3996
2282		0.669	2282		0.1538	2282		0.3942
2283		0.3208	2283		0.2951	2283		0.3856
2284		0.6896	2284		0.235	2284		0.4161
2285		0.3143	2285		0.2951	2285		0.4137
2286		0.71	2286		0.2628	2286		0.4161
2287		0.71	2287		0.2951	2287		0.3128
2288		0.3112	2288		0.2612	2288		0.3661
2289		0.3646	2289		0.3274	2289		0.6449
2290		0.71	2290		0.3168	2290		0.517
2291	aberrant	0.158	2291		0.3168	2291		0.41
2292		0.3646	2292		0.3168	2292		0.5593
2293		0.6216	2293		0.3168	2293		0.4161
2294		0.71	2294	aberrant	0.0642	2294		0.4161

2295	aberrant	0.2176	2295	aberrant	0.0642	2295	aberrant	0.2616
2296		0.3646	2296	aberrant	0.0642	2296		0.4161

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2297		0.3544	2297	aberrant	0.0801	2297		0.3178
2298		0.5822	2298		0.1891	2298		0.4161
2299		0.6896	2299		0.1891	2299		0.3856
2300	aberrant	0.0017	2300		0.1891	2300		0.4161
2301		0.471	2301		0.1891	2301		0.4147
2302		0.4327	2302		0.1891	2302		0.3328
2303		0.3646	2303		0.1745	2303		0.3944
2304		0.3646	2304		0.1745	2304		0.4898
2305		0.3646	2305		0.1891	2305		0.5201
2306		0.3646	2306		0.1891	2306	aberrant	0.2514
2307		0.3646	2307		0.1891	2307		0.4891
2308		0.3646	2308		0.1891	2308		0.4087
2309		0.3646	2309		0.1891	2309	aberrant	0.2705
2310		0.3342	2310		0.1891	2310		0.41
2311		0.397	2311		0.1891	2311	aberrant	0.2922
2312		0.3055	2312		0.1891	2312		0.4161
2313		0.3646	2313		0.1891	2313		0.4672
2314		0.3646	2314		0.1891	2314		0.4161
2315		0.3646	2315		0.1891	2315		0.3856
2316		0.3646	2316		0.1891	2316		0.4161
2317		0.3646	2317		0.1891	2317		0.4161
2318		0.3646	2318		0.1891	2318		0.485
2319		0.3646	2319		0.1891	2319		0.3647
2320		0.3646	2320		0.1891	2320		0.3856
2321	aberrant	0.0326	2321		0.1891	2321		0.4234
2322		0.3646	2322		0.4138	2322		0.4003
2323		0.3646	2323		0.4138	2323		0.41
2324		0.3055	2324		0.4138	2324		0.4175
2325		0.3646	2325		0.4425	2325		0.5462
2326		0.3646	2326		0.4137	2326		0.4983
2327		0.3646	2327		0.4425	2327		0.4161
2328		0.3571	2328		0.4425	2328		0.4688
2329		0.3571	2329		0.4425	2329		0.4355
2330		0.3571	2330		0.4667	2330		0.5255
2331		0.3571	2331		0.4145	2331		0.37
2332		0.3571	2332		0.4138	2332		0.406
2333		0.3571	2333		0.4407	2333	aberrant	0.2857
2334		0.2485	2334		0.4425	2334	aberrant	0.2726
2335		0.2546	2335		0.4425	2335		0.3606

2336		0.2979	2336		0.4057	2336		0.4161
2337	aberrant	0.1965	2337		0.4138	2337		0.4161

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2338		0.3571	2338		0.4425	2338		0.3575
2339		0.3571	2339		0.4246	2339		0.3924
2340		0.3571	2340		0.4425	2340		0.3542
2341		0.3407	2341		0.4138	2341		0.3667
2342		0.3046	2342		0.4425	2342		0.3667
2343		0.3104	2343		0.5343	2343		0.3667
2344		0.3104	2344		0.4748	2344		0.3448
2345		0.3104	2345		0.5064	2345		0.3667
2346		0.3104	2346		0.4748	2346		0.3667
2347		0.3571	2347		0.5343	2347		0.357
2348		0.3571	2348		0.5343	2348	aberrant	0.3024
2349		0.3571	2349		0.5343	2349		0.3667
2350		0.3104	2350		0.5343	2350		0.3231
2351		0.3571	2351		0.5343	2351		0.3866
2352		0.3571	2352		0.5343	2352		0.389
2353		0.2701	2353		0.5269	2353		0.4322
2354		0.3571	2354		0.5343	2354	aberrant	0.2307
2355	aberrant	0.2299	2355		0.1682	2355		0.3667
2356		0.3571	2356		0.1682	2356		0.3667
2357		0.3104	2357		0.1682	2357	aberrant	0.3067
2358		0.3571	2358		0.1682	2358		0.3556
2359		0.3571	2359		0.1682	2359		0.3667
2360		0.3571	2360	aberrant	0.0652	2360		0.4239
2361		0.3571	2361		0.1682	2361		0.3211
2362		0.3571	2362		0.1894	2362		0.3853
2363		0.3571	2363		0.1682	2363		0.4057
2364		0.3651	2364		0.1894	2364		0.4646
2365		0.4697	2365		0.1682	2365		0.4139
2366		0.453	2366	aberrant	0.1009	2366		0.4042
2367		0.4697	2367		0.1682	2367		0.4057
2368		0.4697	2368		0.1682	2368		0.3864
2369		0.4697	2369		0.1682	2369		0.4057
2370		0.4697	2370		0.1682	2370	aberrant	0.2899
2371		0.4784	2371		0.1682	2371		0.4139
2372		0.5483	2372	aberrant	0.142	2372		0.4057
2373		0.6556	2373		0.153	2373		0.4481
2374		0.6556	2374		0.1682	2374		0.3681
2375		0.6556	2375		0.1682	2375		0.4139
2376		0.4697	2376		0.1682	2376		0.4057

2377	aberrant	0.1868	2377		0.2778	2377		0.4057
2378	aberrant	0.1868	2378	aberrant	0.0731	2378		0.6301

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2379	aberrant	0.1868	2379		0.18	2379	aberrant	0.251
2380	aberrant	0.1481	2380		0.18	2380		0.4079
2381	aberrant	0.1678	2381		0.1871	2381		0.5026
2382		0.338	2382		0.18	2382		0.6301
2383		0.3588	2383		0.1871	2383	aberrant	0.2629
2384		0.3588	2384		0.1871	2384		0.6301
2385		0.3588	2385		0.1871	2385		0.6301
2386		0.3588	2386		0.1871	2386		0.3947
2387		0.3588	2387		0.2146	2387		0.4079
2388		0.3365	2388		0.2146	2388		0.6301
2389		0.3588	2389		0.1871	2389		0.4785
2390	aberrant	0.1868	2390		0.1871	2390		0.4169
2391	aberrant	0.1678	2391		0.1871	2391		0.6301
2392	aberrant	0.1678	2392		0.1951	2392		0.4079
2393		0.4267	2393		0.18	2393		0.6301
2394		0.4686	2394		0.18	2394		0.6301
2395		0.4686	2395		0.202	2395		0.6301
2396		0.4686	2396		0.1871	2396		0.4818
2397		0.4686	2397		0.202	2397		0.4455
2398		0.4886	2398		0.1871	2398		0.5051
2399		0.4686	2399		0.2518	2399		0.4218
2400		0.4686	2400		0.1871	2400	aberrant	0.104
2401		0.4686	2401		0.2146	2401		0.5525
2402		0.4686	2402		0.1871	2402		0.6111
2403		0.4686	2403		0.202	2403		0.5461
2404		0.4686	2404		0.1871	2404		0.5296
2405		0.4686	2405		0.202	2405		0.6449
2406		0.4686	2406		0.1871	2406		0.5872
2407		0.4686	2407		0.1871	2407		0.587
2408		0.7807	2408		0.1871	2408		0.5424
2409		0.7807	2409		0.1871	2409		0.4967
2410		0.5678	2410		0.202	2410		0.5803
2411		0.7807	2411		0.1871	2411		0.6721
2412		0.7807	2412		0.2153	2412		0.5953
2413		0.4823	2413		0.1683	2413		0.4365
2414		0.6364	2414		0.2869	2414		0.5964
2415		0.7807	2415		0.2281	2415		0.3705
2416		0.7807	2416		0.2281	2416		0.587
2417		0.7807	2417		0.2281	2417		0.5666

2418		0.7807	2418		0.1698	2418		0.6261
2419		0.7668	2419		0.243	2419		0.4598

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2420		0.7807	2420		0.2826	2420	aberrant	0.3037
2421		0.7807	2421		0.2281	2421	aberrant	0.2559
2422		0.6556	2422		0.2796	2422	aberrant	0.3037
2423		0.634	2423		0.2157	2423		0.585
2424		0.38	2424		0.2571	2424		0.4768
2425		0.5095	2425		0.2281	2425		0.585
2426		0.6556	2426		0.243	2426		0.5401
2427		0.4763	2427		0.2713	2427		0.575
2428		0.6556	2428		0.2729	2428		0.5581
2429		0.6556	2429		0.1694	2429		0.6144
2430		0.5631	2430		0.2571	2430		0.5624
2431		0.6556	2431		0.2281	2431		0.6144
2432		0.5483	2432		0.2316	2432		0.5082
2433		0.4697	2433		0.2281	2433		0.6144
2434		0.4697	2434		0.2746	2434		0.5549
2435		0.4697	2435		0.3102	2435		0.4609
2436		0.4398	2436		0.2281	2436		0.5437
2437		0.4784	2437		0.2571	2437		0.6301
2438		0.4007	2438		0.2137	2438		0.6301
2439		0.5768	2439		0.4018	2439		0.6301
2440		0.4697	2440		0.4633	2440		0.4295
2441		0.4398	2441		0.2275	2441		0.6301
2442		0.4061	2442		0.2386	2442		0.4832
2443		0.2796	2443		0.2571	2443		0.3713
2444	aberrant	0.2159	2444		0.2571	2444		0.4526
2445	aberrant	0.2114	2445		0.2826	2445		0.4896
2446	aberrant	0.2369	2446		0.2571	2446		0.5714
2447		0.2796	2447		0.2281	2447		0.5396
2448	aberrant	0.2114	2448		0.4226	2448		0.4249
2449		0.2863	2449		0.2713	2449		0.4823
2450		0.2796	2450		0.216	2450		0.5396
2451	aberrant	0.0554	2451		0.2571	2451		0.4922
2452		0.2796	2452		0.2514	2452		0.4506
2453		0.2796	2453		0.2281	2453		0.4647
2454		0.2677	2454		0.2826	2454		0.4564
2455	aberrant	0.0774	2455		0.2281	2455		0.5396
2456	aberrant	0.1744	2456		0.2571	2456		0.5396
2457		0.2796	2457		0.2571	2457		0.5396
2458	aberrant	0.2329	2458		0.2984	2458		0.402

2459		0.2915	2459		0.2571	2459		0.402
2460	aberrant	0.1528	2460		0.379	2460		0.402

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2461		0.2648	2461		0.2514	2461		0.402
2462	aberrant	0.2157	2462		0.2826	2462		0.402
2463	aberrant	0.1403	2463		0.2571	2463		0.3635
2464	aberrant	0.1593	2464		0.2571	2464		0.4475
2465	aberrant	0.1593	2465		0.2766	2465		0.3933
2466	aberrant	0.2411	2466		0.2546	2466		0.402
2467	aberrant	0.2175	2467		0.2331	2467		0.402
2468	aberrant	0.191	2468		0.1949	2468		0.3933
2469	aberrant	0.2175	2469		0.242	2469		0.402
2470	aberrant	0.2175	2470		0.221	2470		0.402
2471	aberrant	0.1593	2471		0.2696	2471		0.402
2472		0.3318	2472		0.2013	2472		0.4993
2473	aberrant	0.2175	2473		0.1698	2473		0.59
2474	aberrant	0.1593	2474		0.2647	2474	aberrant	0.2872
2475	aberrant	0.2175	2475		0.2571	2475	aberrant	0.2872
2476		0.2663	2476		0.2281	2476	aberrant	0.2872
2477	aberrant	-0.1793	2477		0.2571	2477		0.3933
2478		0.5791	2478		0.2571	2478	aberrant	0.128
2479		0.2826	2479		0.1887	2479	aberrant	0.2392
2480		0.3118	2480		0.2571	2480	aberrant	-0.1404
2481		0.3118	2481		0.2345	2481	aberrant	0.1866
2482		0.2464	2482		0.4613	2482		0.6228
2483		0.3147	2483		0.4292	2483		0.3109
2484		0.3632	2484		0.2188	2484		0.3481
2485		0.3306	2485		0.2262	2485		0.3735
2486		0.5443	2486		0.2303	2486		0.5768
2487		0.4485	2487		0.2281	2487	aberrant	0.2517
2488		0.5436	2488		0.4724	2488	aberrant	0.1504
2489		0.2746	2489		0.3825	2489		0.4045
2490		0.5363	2490		0.2137	2490	aberrant	0.2801
2491		0.2529	2491		0.2281	2491		0.4331
2492		0.4587	2492		0.2137	2492	aberrant	0.2938
2493		0.4309	2493		0.2137	2493		0.3932
2494		0.3878	2494		0.4724	2494		0.5569
2495		0.3894	2495		0.4633	2495		0.5953
2496		0.3288	2496		0.2227	2496		0.4778
2497		0.4615	2497		0.1887	2497		0.5496
2498	aberrant	0.2434	2498		0.2137	2498		0.5014
2499		0.41	2499		0.1887	2499		0.443

2500		0.4241	2500		0.1887	2500		0.5452
2501		0.4267	2501		0.2281	2501		0.5147

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2502		0.4065	2502		0.2137	2502		0.5301
2503		0.4195	2503		0.2137	2503		0.5995
2504		0.3041	2504		0.2237	2504		0.5425
2505		0.3462	2505		0.2571	2505		0.6449
2506		0.2755	2506		0.2137	2506		0.5953
2507		0.4896	2507		0.1703	2507		0.5014
2508		0.4138	2508		0.2137	2508		0.5713
2509		0.355	2509		0.2137	2509		0.4928
2510		0.3459	2510		0.1887	2510		0.5014
2511		0.2762	2511		0.2316	2511	aberrant	0.2942
2512		0.4104	2512		0.203	2512		0.5507
2513		0.4109	2513		0.1999	2513		0.5666
2514	aberrant	0.2404	2514		0.1887	2514		0.5953
2515		0.3443	2515		0.4724	2515		0.4568
2516		0.5238	2516		0.2713	2516		0.6449
2517		0.3747	2517		0.1887	2517		0.6449
2518		0.292	2518		0.2137	2518		0.4977
2519		0.296	2519		0.4749	2519		0.5529
2520		0.4445	2520		0.2281	2520		0.6449
2521		0.3562	2521		0.4724	2521		0.3132
2522		0.3164	2522		0.2281	2522		0.4109
2523		0.5019	2523		0.2137	2523		0.4097
2524		0.4076	2524		0.2378	2524		0.6449
2525		0.4104	2525		0.2571	2525		0.6042
2526		0.4927	2526		0.2281	2526		0.5953
2527		0.3296	2527		0.4724	2527	aberrant	0.2994
2528		0.4257	2528		0.3125	2528		0.6449
2529		0.3461	2529		0.2051	2529		0.3664
2530		0.4026	2530		0.4724	2530		0.602
2531		0.4745	2531		0.2571	2531		0.4186
2532		0.4228	2532		0.2571	2532		0.4186
2533		0.5272	2533		0.1887	2533		0.6449
2534		0.5316	2534		0.2546	2534		0.6449
2535		0.5565	2535		0.2316	2535		0.6126
2536		0.3862	2536		0.1887	2536		0.6095
2537		0.423	2537		0.2571	2537		0.4956
2538		0.5591	2538		0.2236	2538		0.5294
2539		0.4943	2539		0.2137	2539		0.6449
2540		0.4352	2540		0.1887	2540		0.6449

2541		0.3356	2541		0.1999	2541		0.5945
2542		0.3771	2542		0.1887	2542		0.421

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2543		0.2882	2543		0.2212	2543		0.421
2544	aberrant	0.2198	2544		0.3522	2544		0.5656
2545		0.3426	2545		0.2137	2545		0.421
2546		0.3924	2546		0.1887	2546		0.421
2547	aberrant	0.1725	2547		0.2281	2547		0.421
2548		0.2645	2548		0.1698	2548		0.421
2549		0.2901	2549		0.2273	2549		0.6449
2550		0.3532	2550		0.2547	2550		0.6449
2551	aberrant	0.1725	2551		0.1887	2551		0.421
2552		0.4766	2552		0.1703	2552		0.3656
2553	aberrant	0.0246	2553	aberrant	0.0115	2553		0.448
2554		0.4109	2554		0.2571	2554		0.421
2555		0.4768	2555		0.2316	2555		0.421
2556		0.4202	2556		0.4724	2556		0.6449
2557		0.2613	2557		0.2361	2557		0.485
2558		0.5811	2558		0.4283	2558		0.3738
2559		0.6184	2559		0.2281	2559		0.5396
2560		0.424	2560		0.2281	2560		0.5396
2561	aberrant	0.1379	2561		0.2452	2561		0.6449
2562	aberrant	0.1132	2562		0.2281	2562		0.6449
2563		0.3381	2563		0.2281	2563		0.6621
2564		0.4922	2564		0.2281	2564		0.5728
2565		0.3358	2565		0.1986	2565		0.4946
2566	aberrant	0.2123	2566		0.2199	2566		0.5655
2567		0.5411	2567		0.1887	2567		0.5976
2568		0.502	2568		0.2137	2568		0.6114
2569		0.5002	2569		0.1887	2569		0.5763
2570		0.5652	2570		0.2713	2570		0.5273
2571		0.5676	2571		0.2073	2571		0.6077
2572		0.6896	2572		0.2571	2572		0.5891
2573		0.4942	2573		0.4724	2573		0.6114
2574		0.6874	2574		0.4724	2574		0.4946
2575		0.4623	2575		0.2137	2575		0.4455
2576		0.4905	2576		0.1898	2576	aberrant	0.2218
2577		0.4146	2577		0.2137	2577		0.5531
2578		0.4846	2578		0.2571	2578		0.6449
2579		0.4979	2579		0.2869	2579		0.6449
2580		0.5032	2580		0.203	2580		0.6449
2581		0.431	2581		0.1887	2581		0.5321

2582		0.514	2582		0.1703	2582		0.6449
2583		0.4475	2583		0.1887	2583		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2584		0.306	2584		0.2084	2584		0.6449
2585		0.3972	2585		0.2084	2585		0.6449
2586		0.5763	2586		0.2137	2586		0.6449
2587		0.2883	2587		0.2153	2587		0.5249
2588		0.4084	2588		0.203	2588		0.5936
2589		0.4096	2589		0.2448	2589		0.6449
2590		0.6561	2590		0.4633	2590		0.6449
2591		0.5652	2591		0.2571	2591		0.6449
2592		0.6896	2592		0.2237	2592		0.6449
2593		0.6173	2593		0.2137	2593		0.3463
2594		0.5002	2594		0.2061	2594		0.5941
2595	aberrant	0.1428	2595		0.2281	2595		0.6449
2596		0.5645	2596		0.2137	2596		0.6449
2597		0.6373	2597		0.2316	2597		0.591
2598		0.5652	2598	aberrant	-0.0083	2598		0.4344
2599		0.414	2599		0.2571	2599		0.5872
2600		0.6105	2600		0.246	2600		0.6449
2601		0.5652	2601		0.4613	2601		0.6099
2602		0.5353	2602		0.216	2602		0.4989
2603		0.6258	2603		0.4216	2603		0.3716
2604		0.5645	2604		0.1663	2604		0.5872
2605		0.5347	2605		0.2547	2605		0.6449
2606		0.4942	2606		0.211	2606		0.6449
2607		0.5819	2607		0.1887	2607		0.6099
2608		0.3112	2608		0.2547	2608		0.5874
2609		0.3958	2609		0.2137	2609		0.6099
2610		0.3112	2610		0.2571	2610		0.5081
2611		0.3112	2611		0.211	2611		0.6099
2612		0.3112	2612		0.211	2612		0.6099
2613		0.2677	2613		0.2137	2613		0.6449
2614		0.2592	2614		0.1955	2614		0.4436
2615		0.4155	2615		0.2316	2615		0.5259
2616		0.3508	2616	aberrant	0.1281	2616		0.5766
2617		0.2592	2617		0.1949	2617		0.5716
2618		0.2851	2618		0.2571	2618		0.4159
2619		0.3508	2619		0.2084	2619		0.6099
2620		0.2592	2620		0.4724	2620		0.529
2621		0.3748	2621		0.1999	2621		0.4757
2622		0.3965	2622		0.1698	2622		0.524

2623		0.6043	2623		0.2281	2623		0.5677
2624		0.5269	2624		0.1703	2624		0.5953

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2625		0.495	2625		0.4657	2625		0.5139
2626		0.6043	2626		0.2571	2626		0.5755
2627		0.4712	2627		0.4679	2627		0.5511
2628		0.4824	2628		0.4724	2628		0.5478
2629		0.6366	2629		0.2571	2629		0.5629
2630		0.4749	2630		0.1887	2630		0.6449
2631		0.4918	2631		0.2281	2631		0.6449
2632		0.6227	2632		0.2281	2632		0.5953
2633		0.6406	2633		0.2316	2633		0.5235
2634		0.5847	2634		0.2084	2634	aberrant	0.3053
2635		0.6896	2635		0.2281	2635		0.462
2636		0.71	2636		0.2231	2636		0.3969
2637		0.5489	2637		0.2137	2637		0.4111
2638		0.4786	2638		0.4515	2638		0.5149
2639		0.4824	2639		0.5343	2639		0.5588
2640		0.6896	2640		0.5343	2640		0.5742
2641	aberrant	0.216	2641		0.3941	2641		0.4014
2642		0.6373	2642		0.1984	2642	aberrant	0.1954
2643		0.6896	2643		0.1779	2643		0.6449
2644		0.4911	2644	aberrant	0.1481	2644		0.6226
2645		0.6896	2645	aberrant	0.1438	2645		0.6126
2646		0.4798	2646		0.3988	2646		0.572
2647		0.5573	2647		0.4904	2647		0.611
2648		0.4551	2648		0.4793	2648		0.611
2649		0.6896	2649		0.3122	2649		0.611
2650		0.3255	2650		0.3122	2650		0.6126
2651		0.3663	2651		0.5343	2651		0.6449
2652	aberrant	0.1944	2652		0.4816	2652		0.6449
2653	aberrant	0.2176	2653		0.2682	2653		0.5492
2654	aberrant	0.2176	2654		0.2969	2654		0.4243
2655	aberrant	0.1897	2655		0.3047	2655		0.524
2656	aberrant	0.1918	2656		0.2408	2656		0.5416
2657		0.4602	2657	aberrant	0.0793	2657		0.5236
2658		0.4602	2658	aberrant	-0.0963	2658		0.3825
2659		0.5666	2659		0.2659	2659		0.6449
2660	aberrant	0.177	2660		0.4694	2660		0.5097
2661		0.2732	2661		0.344	2661		0.4783
2662	aberrant	0.2069	2662		0.193	2662		0.5416
2663		0.2455	2663		0.2571	2663		0.5529

2664		0.2785	2664		0.2571	2664		0.4932
2665		0.2985	2665		0.2571	2665		0.5492

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2666		0.2925	2666		0.2571	2666		0.5529
2667		0.3998	2667		0.2826	2667		0.5375
2668		0.307	2668		0.2134	2668		0.5529
2669		0.3496	2669		0.2571	2669		0.5416
2670	aberrant	0.2227	2670	aberrant	-0.0092	2670		0.5097
2671		0.3934	2671		0.2571	2671		0.491
2672		0.3294	2672		0.2571	2672		0.5529
2673		0.3278	2673		0.2571	2673		0.5134
2674	aberrant	0.2127	2674		0.2571	2674		0.5416
2675	aberrant	0.0594	2675		0.2571	2675		0.5164
2676		0.6896	2676		0.2571	2676		0.5529
2677		0.6896	2677		0.2273	2677		0.5492
2678		0.4117	2678		0.2439	2678		0.5457
2679		0.6896	2679		0.2571	2679		0.4608
2680		0.3049	2680		0.2571	2680		0.5498
2681		0.6896	2681		0.4911	2681		0.4614
2682		0.5283	2682		0.2209	2682		0.5097
2683		0.5436	2683		0.202	2683		0.5319
2684		0.542	2684		0.2248	2684		0.5319
2685		0.6377	2685		0.326	2685		0.5416
2686		0.4646	2686		0.326	2686		0.6721
2687		0.3106	2687		0.2876	2687		0.4787
2688	aberrant	0.2028	2688		0.4526	2688		0.5416
2689		0.2606	2689	aberrant	0.1001	2689		0.5529
2690		0.3831	2690	aberrant	0.1172	2690		0.5529
2691		0.6343	2691		0.5343	2691		0.5529
2692		0.4596	2692		0.2281	2692		0.5542
2693		0.3498	2693		0.5178	2693		0.5529
2694		0.6896	2694		0.2706	2694		0.5529
2695		0.554	2695		0.1887	2695		0.4769
2696		0.71	2696		0.4756	2696		0.5542
2697		0.5856	2697		0.5078	2697		0.5416
2698		0.71	2698		0.5008	2698		0.5212
2699		0.6874	2699		1	2699		0.5416
2700		0.71	2700		1	2700		0.5416
2701		0.4966	2701	aberrant	0.02	2701		0.5529
2702		0.6896	2702		0.4756	2702		0.536
2703		0.5373	2703		0.5988	2703		0.524
2704		0.5709	2704		0.3578	2704		0.5492

2705		0.5526	2705	aberrant	0.0994	2705		0.4446
2706		0.5373	2706	aberrant	0.0994	2706		0.5529

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2707		0.6874	2707		0.4231	2707		0.5195
2708		0.6184	2708		0.4086	2708		0.5687
2709		0.4463	2709		0.4304	2709		0.514
2710		0.6896	2710		0.5343	2710		0.5195
2711		0.641	2711		0.5271	2711		0.5076
2712		0.5533	2712		0.5343	2712		0.5906
2713		0.5697	2713		0.2616	2713		0.4868
2714		0.5904	2714	aberrant	-0.0247	2714		0.3646
2715		0.5253	2715		0.4904	2715	aberrant	0.2853
2716		0.6502	2716	aberrant	-0.0333	2716	aberrant	0.2874
2717		0.7225	2717		0.4492	2717	aberrant	0.2828
2718	aberrant	0.2118	2718	aberrant	0.0309	2718		0.6449
2719		0.5658	2719	aberrant	-0.0309	2719		0.464
2720		0.6042	2720	aberrant	0.0683	2720		0.6449
2721		0.4972	2721	aberrant	0.0861	2721		0.6449
2722		0.6099	2722	aberrant	0.1001	2722		0.6449
2723		0.6626	2723		0.4256	2723		0.6449
2724		0.6363	2724		0.3676	2724	aberrant	-0.034
2725		0.6503	2725		0.4309	2725		0.6276
2726		0.4433	2726		0.4755	2726		0.5471
2727		0.6896	2727		0.517	2727		0.4689
2728		0.6503	2728		0.517	2728		0.5203
2729		0.6503	2729		0.4759	2729		0.5424
2730		0.5543	2730		0.3926	2730		0.6449
2731		0.6146	2731		0.4735	2731		0.5861
2732		0.6412	2732		0.3935	2732		0.6449
2733		0.6099	2733		0.4874	2733		0.6276
2734		0.4665	2734		0.3926	2734		0.6449
2735		0.6896	2735		0.1867	2735		0.3862
2736		0.6896	2736		0.2357	2736		0.5612
2737		0.6896	2737		0.3858	2737		0.5926
2738		0.71	2738		0.2743	2738		0.4954
2739		0.6874	2739		0.2743	2739		0.6449
2740	aberrant	0.2076	2740		0.4267	2740		0.6449
2741		0.6503	2741		0.2576	2741		0.6111
2742		0.6896	2742		0.3879	2742		0.5926
2743		0.5237	2743		0.2917	2743		0.5936
2744		0.6098	2744		0.3722	2744		0.6449
2745		0.6874	2745		0.4274	2745		0.5939

2746		0.6874	2746		0.409	2746		0.5939
2747		0.592	2747		0.3486	2747		0.6189

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2748		0.6896	2748		0.3258	2748		0.6449
2749		0.6218	2749		0.4099	2749		0.5939
2750		0.6874	2750		0.3975	2750		0.6449
2751		0.6896	2751		0.4249	2751		0.6449
2752		0.5904	2752		0.3722	2752		0.6449
2753		0.5351	2753		0.3879	2753		0.3661
2754		0.5153	2754		0.409	2754		0.6449
2755		0.5533	2755		0.4242	2755		0.3443
2756		0.5533	2756		0.4099	2756		0.6449
2757		0.6896	2757		0.4274	2757		0.6449
2758		0.5185	2758		0.409	2758		0.5571
2759		0.5326	2759		0.4103	2759		0.5857
2760		0.6626	2760		0.4379	2760		0.6449
2761		0.4463	2761		0.3369	2761		0.6449
2762		0.5543	2762		0.3675	2762		0.5666
2763		0.6896	2763		0.4099	2763		0.6449
2764		0.641	2764		0.4379	2764		0.4509
2765		0.5145	2765		0.409	2765		0.4688
2766		0.6896	2766		0.4099	2766		0.5571
2767		0.6896	2767		0.4307	2767		0.5571
2768		0.5508	2768		0.4113	2768		0.4588
2769		0.5533	2769		0.4274	2769		0.5571
2770		0.6139	2770		0.4077	2770		0.4848
2771		0.4463	2771		0.4965	2771		0.4848
2772		0.6316	2772		0.4077	2772		0.3633
2773		0.6896	2773		0.3617	2773		0.4848
2774		0.5503	2774		0.4124	2774		0.4369
2775		0.7225	2775		0.3675	2775		0.4356
2776		0.5932	2776		0.3313	2776		0.4848
2777		0.71	2777		0.4215	2777		0.4848
2778		0.71	2778	aberrant	0.0994	2778		0.4848
2779		0.5145	2779	aberrant	0.0994	2779		0.4848
2780		0.6896	2780	aberrant	0.1265	2780		0.4531
2781		0.6193	2781	aberrant	0.0994	2781		0.3899
2782		0.6896	2782	aberrant	0.0994	2782		0.4848
2783		0.6896	2783	aberrant	0.0994	2783		0.5396
2784		0.4463	2784	aberrant	0.0994	2784		0.5414
2785		0.3254	2785	aberrant	0.0303	2785		0.5107
2786	aberrant	0.2407	2786	aberrant	0.0994	2786		0.5038

2787		0.2948	2787	aberrant	0.0472	2787		0.5396
2788		0.4132	2788	aberrant	0.1265	2788		0.4474

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2789		0.3123	2789	aberrant	0.0994	2789		0.521
2790		0.3254	2790	aberrant	0.1141	2790		0.5396
2791		0.3781	2791	aberrant	0.1141	2791		0.4998
2792		0.5044	2792	aberrant	0.1032	2792		0.4529
2793		0.3113	2793	aberrant	0.1321	2793		0.5144
2794		0.3431	2794		0.232	2794		0.4922
2795		0.3167	2795	aberrant	0.1321	2795		0.5038
2796		0.3807	2796		0.232	2796		0.621
2797		0.3801	2797	aberrant	0.1321	2797		0.4735
2798		0.3781	2798		0.232	2798		0.4561
2799		0.3781	2799		0.1549	2799		0.5651
2800		0.3908	2800	aberrant	0.0996	2800		0.6449
2801		0.327	2801		0.2535	2801		0.6449
2802		0.6015	2802		0.2535	2802		0.6449
2803		0.6099	2803		0.2535	2803		0.4668
2804		0.4545	2804		0.2328	2804		0.5615
2805		0.5387	2805		0.3134	2805		0.5872
2806		0.5057	2806		0.2535	2806		0.5074
2807		0.3991	2807		0.3134	2807		0.5376
2808		0.3643	2808		0.2063	2808		0.5714
2809		0.3643	2809		0.2949	2809		0.6449
2810		0.4251	2810		0.2368	2810		0.5714
2811		0.5766	2811		0.2368	2811		0.6449
2812		0.6195	2812		0.2949	2812		0.6449
2813		0.6208	2813		0.5164	2813	aberrant	0.2953
2814		0.3547	2814		0.4594	2814		0.3953
2815		0.3453	2815		0.4863	2815	aberrant	0.1098
2816		0.3515	2816		0.5056	2816		0.397
2817		0.3484	2817		0.4863	2817		0.4319
2818		0.3781	2818		0.418	2818		0.5256
2819		0.3618	2819		0.4389	2819		0.4319
2820		0.643	2820		0.4558	2820		0.6037
2821		0.4022	2821		0.4863	2821		0.342
2822		0.3991	2822		0.5164	2822		0.6449
2823		0.6559	2823		0.5343	2823		0.6449
2824		0.3317	2824	aberrant	0.0994	2824		0.6449
2825		0.71	2825	aberrant	0.1204	2825		0.3938
2826		0.3718	2826	aberrant	0.0994	2826		0.6261
2827		0.3991	2827	aberrant	0.0994	2827		0.6449

2828		0.71	2828	aberrant	0.0994	2828		0.5953
2829		0.3991	2829	aberrant	0.0994	2829		0.5953

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2830		0.4131	2830	aberrant	0.0994	2830		0.6449
2831		0.3506	2831		0.3956	2831		0.6449
2832		0.5838	2832		0.3956	2832		0.6449
2833		0.6015	2833		0.3956	2833		0.6261
2834		0.3819	2834		0.3956	2834		0.5199
2835		0.3781	2835		0.3956	2835		0.5409
2836		0.3781	2836		0.3956	2836		0.5987
2837		0.4131	2837		0.3956	2837		0.6449
2838		0.5403	2838		0.3956	2838		0.6449
2839		0.4134	2839		0.3956	2839		0.6449
2840		0.3853	2840		0.3956	2840		0.6449
2841		0.3982	2841		0.3956	2841		0.6449
2842		0.3633	2842		0.3956	2842		0.6449
2843		0.3453	2843		0.3956	2843		0.5964
2844		0.5175	2844		0.4756	2844		0.4936
2845		0.4956	2845		0.3956	2845		0.5115
2846		0.6389	2846		0.3956	2846		0.5199
2847		0.4739	2847		0.4756	2847		0.6449
2848		0.5719	2848		0.4756	2848		0.5122
2849		0.3416	2849		0.4756	2849		0.5964
2850		0.3781	2850		0.3956	2850		0.5611
2851		0.5893	2851		0.4756	2851		0.6449
2852		0.6209	2852		0.3956	2852		0.6002
2853		0.643	2853		0.3956	2853		0.4906
2854		0.58	2854		0.3859	2854		0.5611
2855		0.3805	2855		0.2756	2855		0.5939
2856		0.3991	2856		0.3573	2856		0.5575
2857		0.3781	2857		0.3956	2857		0.5727
2858		0.3781	2858		0.3956	2858		0.5865
2859		0.3173	2859		0.4147	2859		0.6449
2860		0.3781	2860		0.1984	2860		0.6449
2861		0.2924	2861		0.3573	2861		0.5717
2862		0.3991	2862		0.4147	2862		0.6449
2863		0.5625	2863		0.3956	2863		0.5678
2864		0.3781	2864		0.3573	2864		0.5199
2865		0.71	2865		0.4147	2865		0.4961
2866		0.3747	2866		0.3859	2866	aberrant	0.0582
2867		0.3991	2867		0.3859	2867		0.5953
2868		0.4739	2868		0.4147	2868		0.5647

2869		0.3991	2869		0.4147	2869		0.5271
2870	aberrant	0.1403	2870		0.4147	2870		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2871		0.6896	2871		0.4147	2871		0.5575
2872		0.6223	2872		0.3956	2872		0.6449
2873		0.71	2873		0.4756	2873		0.5414
2874		0.71	2874		0.4756	2874		0.5363
2875		0.6383	2875		0.4756	2875		0.5874
2876		0.6435	2876		0.4756	2876		0.6449
2877		0.71	2877		0.4756	2877		0.4388
2878		0.71	2878		0.4756	2878		0.547
2879		0.5451	2879		0.4756	2879		0.4486
2880		0.6896	2880		0.4756	2880		0.5311
2881		0.6435	2881		0.4756	2881		0.5311
2882		0.6896	2882		0.4756	2882		0.5226
2883		0.6896	2883		0.434	2883		0.5313
2884		0.6896	2884		0.4283	2884		0.489
2885		0.6896	2885		0.4756	2885		0.4943
2886		0.6896	2886		0.4756	2886		0.5284
2887		0.6896	2887		0.4756	2887		0.5795
2888		0.6896	2888		0.4756	2888		0.6261
2889		0.6896	2889		0.4756	2889		0.6294
2890		0.6049	2890		0.3431	2890		0.5964
2891		0.6049	2891		0.2188	2891		0.5309
2892		0.6049	2892		0.3474	2892		0.6261
2893		0.6049	2893		0.3859	2893		0.5502
2894		0.6223	2894		0.3859	2894		0.5906
2895		0.6223	2895		0.3859	2895		0.6261
2896		0.6874	2896		0.3956	2896		0.6261
2897		0.6896	2897		0.3956	2897		0.6449
2898		0.6874	2898		0.3956	2898		0.6276
2899		0.6874	2899		0.3956	2899		0.6449
2900		0.6874	2900		0.342	2900		0.5649
2901		0.6874	2901		0.3956	2901		0.6449
2902		0.6874	2902		0.4283	2902		0.6449
2903		0.576	2903		0.4283	2903		0.539
2904		0.5664	2904		0.3956	2904		0.5408
2905		0.547	2905		0.1887	2905		0.6449
2906		0.6223	2906	aberrant	0.1508	2906		0.6449
2907		0.6223	2907	aberrant	0.1508	2907		0.6449
2908		0.4934	2908	aberrant	0.1078	2908		0.6449
2909		0.6223	2909	aberrant	0.117	2909		0.6449

2910		0.6874	2910	aberrant	0.1497	2910		0.6449
2911		0.5865	2911	aberrant	0.0032	2911		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2912		0.6896	2912		0.1887	2912		0.5953
2913		0.6874	2913	aberrant	0.1508	2913		0.5065
2914		0.6	2914		0.1887	2914		0.6449
2915		0.6	2915	aberrant	0.1078	2915		0.6449
2916		0.6	2916	aberrant	0.117	2916		0.5874
2917		0.6379	2917	aberrant	0.117	2917		0.6449
2918		0.6223	2918	aberrant	0.1263	2918		0.6449
2919		0.5818	2919		0.1887	2919		0.5268
2920		0.6327	2920	aberrant	0.1508	2920		0.5855
2921		0.6327	2921	aberrant	0.1078	2921		0.6449
2922		0.7225	2922	aberrant	0.117	2922		0.6449
2923		0.7225	2923		0.1651	2923		0.6449
2924		0.7225	2924		0.1584	2924		0.6449
2925		0.4014	2925	aberrant	0.1078	2925		0.6449
2926		0.4014	2926	aberrant	0.117	2926		0.5192
2927		0.6502	2927	aberrant	0.117	2927		0.5899
2928		0.6502	2928	aberrant	0.1287	2928		0.6425
2929		0.6502	2929	aberrant	0.117	2929		0.5983
2930		0.71	2930		0.1651	2930		0.5538
2931		0.71	2931	aberrant	0.1343	2931		0.6449
2932		0.5097	2932	aberrant	0.1343	2932		0.496
2933		0.5495	2933	aberrant	0.1205	2933		0.4858
2934		0.6006	2934	aberrant	0.1295	2934		0.5034
2935		0.6383	2935	aberrant	0.0994	2935		0.47
2936		0.71	2936	aberrant	0.0994	2936		0.4284
2937		0.7225	2937	aberrant	0.0994	2937		0.5138
2938		0.6383	2938	aberrant	0.0994	2938		0.5499
2939		0.6383	2939	aberrant	0.0994	2939		0.562
2940		0.7225	2940	aberrant	0.0994	2940		0.5571
2941		0.6112	2941	aberrant	0.1343	2941		0.6449
2942		0.6112	2942		0.3635	2942		0.3555
2943		0.711	2943		0.3674	2943		0.5407
2944		0.4486	2944		0.3596	2944		0.6449
2945		0.7225	2945		0.3635	2945		0.5045
2946		0.7225	2946		0.4688	2946		0.5045
2947		0.6483	2947		0.5343	2947		0.4997
2948		0.5684	2948		0.3622	2948		0.4559
2949		0.5684	2949		0.4409	2949		0.4915
2950		0.7225	2950		0.4409	2950		0.5538

2951		0.6307	2951		0.4409	2951		0.5488
2952		0.591	2952		0.4409	2952		0.5559

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2953		0.6874	2953		0.4409	2953		0.5369
2954		0.7225	2954		0.4409	2954		0.5538
2955		0.5757	2955		0.4409	2955		0.5945
2956		0.6223	2956		0.4409	2956		0.4533
2957		0.6383	2957		0.3872	2957		0.5618
2958		0.6383	2958	aberrant	0.0505	2958		0.5195
2959		0.6412	2959		0.3443	2959		0.5324
2960		0.6435	2960	aberrant	0.0994	2960		0.4284
2961		0.5264	2961	aberrant	0.0994	2961		0.5044
2962		0.4795	2962	aberrant	0.0994	2962		0.5156
2963		0.601	2963	aberrant	0.0994	2963		0.5629
2964		0.572	2964	aberrant	-0.0046	2964		0.5538
2965		0.572	2965		0.3941	2965		0.5941
2966		0.5924	2966		0.3825	2966		0.5538
2967		0.5669	2967		0.402	2967		0.4344
2968		0.5924	2968		0.4078	2968		0.4336
2969		0.6383	2969		0.3888	2969		0.5571
2970		0.6435	2970		0.1734	2970		0.4625
2971		0.5924	2971		0.4257	2971		0.496
2972		0.7225	2972		0.3616	2972		0.6278
2973		0.6333	2973		0.3825	2973		0.5503
2974		0.7225	2974		0.35	2974		0.5706
2975		0.7225	2975		0.4244	2975		0.5067
2976		0.7225	2976		0.3622	2976		0.5369
2977		0.586	2977		0.3622	2977		0.5872
2978		0.7225	2978		0.3622	2978		0.551
2979		0.71	2979		0.3688	2979		0.5576
2980		0.6896	2980		0.4183	2980		0.5279
2981		0.6896	2981		0.362	2981		0.4994
2982		0.6896	2982		0.486	2982		0.6449
2983		0.4364	2983		0.486	2983		0.5324
2984		0.4364	2984		0.2249	2984		0.3694
2985		0.4364	2985		0.3171	2985		0.5629
2986		0.3214	2986	aberrant	-0.0582	2986		0.5472
2987		0.3214	2987	aberrant	-0.0427	2987		0.3158
2988		0.3332	2988	aberrant	0.0872	2988	aberrant	0.2678
2989		0.2858	2989		0.3732	2989	aberrant	0.2688
2990		0.4957	2990		0.1899	2990		0.341
2991		0.6874	2991	aberrant	0.1438	2991		0.341

2992		0.6296	2992		0.5343	2992	aberrant	0.2732
2993		0.6022	2993		0.4718	2993		0.3223

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
2994		0.6874	2994	aberrant	0.0996	2994		0.3295
2995		0.6491	2995	aberrant	0.0996	2995		0.3223
2996		0.6022	2996	aberrant	0.1296	2996	aberrant	0.2489
2997		0.71	2997	aberrant	0.1296	2997		0.341
2998		0.71	2998	aberrant	0.0715	2998		0.341
2999		0.6874	2999		0.5343	2999	aberrant	0.2732
3000		0.6767	3000		0.5343	3000	aberrant	0.2802
3001		0.6874	3001		0.5343	3001		0.341
3002		0.6874	3002		0.5343	3002		0.3241
3003		0.7225	3003		0.5343	3003		0.3241
3004		0.6874	3004		0.5343	3004		0.341
3005		0.6874	3005		0.5343	3005		0.3241
3006		0.6874	3006		0.5343	3006		0.3241
3007		0.6874	3007		0.5343	3007		0.3518
3008		0.71	3008		0.4828	3008		0.3241
3009		0.71	3009		0.5343	3009		0.3178
3010		0.6483	3010		0.5343	3010		0.3241
3011		0.5735	3011		0.2439	3011	aberrant	0.2791
3012		0.569	3012		0.2439	3012		0.5933
3013		0.6533	3013		0.1604	3013	aberrant	0.2786
3014		0.71	3014		0.2439	3014	aberrant	0.2296
3015		0.71	3015		0.2027	3015		0.3223
3016		0.71	3016		0.2034	3016	aberrant	0.301
3017		0.71	3017		0.2348	3017		0.3185
3018		0.71	3018	aberrant	0.0432	3018	aberrant	0.2805
3019		0.71	3019		0.2439	3019		0.341
3020		0.5983	3020	aberrant	0.0158	3020		0.341
3021		0.7225	3021		0.5343	3021		0.369
3022		0.7225	3022		0.5343	3022		0.341
3023		0.647	3023		0.4725	3023		0.341
3024		0.5831	3024		0.4619	3024		0.341
3025		0.552	3025		0.5343	3025		0.341
3026		0.6515	3026		0.5343	3026		0.4604
3027		0.6515	3027		0.5343	3027		0.583
3028		0.653	3028		0.5343	3028		0.5131
3029		0.6561	3029		0.5343	3029		0.6449
3030		0.6561	3030		0.5086	3030		0.5872
3031		0.7225	3031		0.5343	3031		0.5744
3032		0.7225	3032		0.5343	3032		0.5372

3033		0.6379	3033		0.5343	3033		0.5861
3034		0.6549	3034		0.5343	3034		0.5898

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3035		0.6347	3035		0.5343	3035		0.412
3036		0.6874	3036		0.5343	3036		0.5189
3037		0.7225	3037		0.5343	3037		0.4759
3038		0.6874	3038		0.2776	3038		0.5953
3039		0.6874	3039		0.1764	3039		0.4759
3040		0.6275	3040		0.2952	3040		0.5953
3041		0.6293	3041		0.3615	3041		0.5112
3042		0.7225	3042		0.362	3042		0.5249
3043		0.586	3043		0.2797	3043		0.5885
3044		0.586	3044		0.2749	3044		0.5209
3045		0.7225	3045		0.3234	3045		0.5488
3046		0.7225	3046		0.2838	3046		0.5574
3047	aberrant	0.2007	3047		0.362	3047		0.6449
3048		0.586	3048		0.3234	3048		0.6449
3049		0.6307	3049		0.3077	3049		0.6449
3050		0.6631	3050		0.238	3050		0.5885
3051		0.6505	3051		0.2776	3051		0.5005
3052		0.6223	3052		0.362	3052		0.5587
3053		0.6529	3053		0.3134	3053		0.611
3054		0.6223	3054		0.362	3054		0.6979
3055		0.6435	3055		0.3043	3055		0.4206
3056		0.6361	3056		0.362	3056		0.4865
3057		0.6896	3057		0.3234	3057		0.45
3058		0.6412	3058		0.3077	3058	aberrant	-0.0016
3059		0.6412	3059		0.2797	3059		0.5857
3060		0.6412	3060		0.362	3060		0.6449
3061		0.6435	3061		0.2797	3061	aberrant	0.1216
3062		0.6412	3062		0.3234	3062	aberrant	0.114
3063		0.6412	3063		0.2776	3063	aberrant	0.1818
3064		0.6896	3064		0.486	3064	aberrant	0.1216
3065		0.6896	3065		0.4123	3065		0.5484
3066		0.637	3066		0.4552	3066		0.5953
3067		0.6412	3067		0.486	3067		0.5499
3068		0.6435	3068		0.4882	3068		0.6721
3069		0.6435	3069		0.486	3069	aberrant	0.2901
3070		0.71	3070		0.486	3070		0.5357
3071		0.6435	3071		0.4882	3071		0.492
3072		0.6435	3072		0.4882	3072		0.5936
3073		0.6317	3073		0.486	3073	aberrant	0.1007

3074		0.6502	3074		0.486	3074	aberrant	0.2614
3075		0.6896	3075		0.459	3075		0.3249

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3076		0.4384	3076		0.4505	3076		0.4223
3077		0.7225	3077		0.4752	3077		0.3524
3078		0.5886	3078		0.2616	3078		0.3905
3079		0.7225	3079		0.2616	3079	aberrant	0.2962
3080		0.572	3080		0.2616	3080		0.354
3081		0.7225	3081		0.2616	3081	aberrant	0.2998
3082		0.7225	3082		0.2616	3082		0.5399
3083		0.7225	3083		0.2616	3083		0.5399
3084		0.6379	3084		0.2616	3084		0.4625
3085		0.4027	3085		0.2616	3085		0.5402
3086		0.6068	3086		0.2976	3086		0.5202
3087		0.5046	3087		0.2976	3087		0.4316
3088		0.5964	3088		0.2616	3088		0.5618
3089		0.6529	3089		0.2616	3089		0.5297
3090		0.71	3090		0.2976	3090		0.5618
3091		0.6529	3091		0.2616	3091		0.5618
3092		0.71	3092		0.2976	3092		0.6449
3093		0.5663	3093		0.2616	3093		0.4775
3094		0.6104	3094		0.2976	3094		0.5475
3095		0.2675	3095		0.2976	3095		0.5529
3096	aberrant	0.2442	3096		0.2616	3096		0.5121
3097		0.2772	3097		0.2616	3097		0.4942
3098		0.2937	3098		0.2976	3098		0.5437
3099		0.2709	3099		0.2976	3099		0.5534
3100		0.2562	3100		0.2976	3100		0.5075
3101		0.3164	3101		0.2616	3101		0.4657
3102	aberrant	0.2152	3102		0.2616	3102		0.5059
3103		0.357	3103		0.5343	3103		0.4462
3104		0.4495	3104		0.2616	3104		0.5529
3105		0.2712	3105		0.5343	3105		0.4929
3106		0.5946	3106		0.2616	3106		0.6449
3107	aberrant	0.1415	3107		0.2616	3107	aberrant	0.2891
3108		0.5946	3108		0.2616	3108		0.4138
3109	aberrant	0.1018	3109		0.2616	3109		0.4543
3110		0.5946	3110		0.2616	3110		0.5785
3111		0.3379	3111		0.4409	3111		0.3236
3112	aberrant	0.196	3112		0.4816	3112		0.5893
3113		0.3554	3113		0.4816	3113		0.5355
3114		0.4102	3114		0.4816	3114	aberrant	0.0617

3115		0.4763	3115		0.4816	3115		0.6449
3116	aberrant	0.1415	3116		0.466	3116		0.4528

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3117		0.71	3117		0.4633	3117		0.5598
3118		0.5928	3118		0.4633	3118	aberrant	0.0578
3119		0.71	3119		0.4633	3119		0.3821
3120		0.6336	3120		0.4633	3120		0.6042
3121		0.6896	3121		0.4633	3121		0.4445
3122		0.5729	3122		0.4007	3122		0.5166
3123		0.6326	3123		0.4633	3123		0.4609
3124		0.6382	3124		0.4633	3124		0.4412
3125		0.71	3125		0.4386	3125		0.6032
3126		0.6874	3126		0.4633	3126	aberrant	0.062
3127		0.6383	3127		0.4633	3127		0.5936
3128		0.5994	3128		0.4358	3128		0.5351
3129		0.6504	3129		0.4633	3129		0.5418
3130		0.5994	3130		0.4358	3130		0.5202
3131		0.6874	3131		0.4169	3131		0.3409
3132		0.6874	3132		0.4259	3132		0.3409
3133		0.6626	3133		0.4633	3133		0.4038
3134		0.5906	3134		0.4633	3134		0.4038
3135		0.6896	3135		0.4633	3135		0.4078
3136		0.5987	3136		0.4399	3136		0.5296
3137		0.6896	3137		0.4358	3137		0.6161
3138		0.6874	3138		0.4044	3138	aberrant	0.2875
3139		0.6896	3139		0.5286	3139		0.6449
3140		0.6896	3140		0.4648	3140		0.5953
3141		0.71	3141	aberrant	0.1371	3141		0.5041
3142		0.6083	3142	aberrant	0.1371	3142		0.5402
3143		0.6896	3143	aberrant	0.1371	3143		0.5374
3144		0.5796	3144	aberrant	0.1154	3144		0.6002
3145		0.5401	3145	aberrant	0.1022	3145		0.4118
3146		0.6361	3146	aberrant	0.1154	3146		0.5165
3147		0.6223	3147	aberrant	0.1371	3147	aberrant	0.2074
3148		0.6021	3148	aberrant	0.1235	3148		0.4379
3149		0.5703	3149	aberrant	0.1154	3149		0.4729
3150		0.4475	3150		0.5145	3150		0.5587
3151		0.6896	3151		0.4005	3151		0.6449
3152		0.6231	3152		0.5343	3152		0.475
3153		0.7225	3153	aberrant	0.1132	3153		0.6449
3154		0.5177	3154		0.5343	3154		0.6449
3155		0.5469	3155	aberrant	0.1499	3155		0.5575

3156		0.5878	3156		0.5343	3156		0.6425
3157		0.6896	3157		0.489	3157		0.5417

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3158		0.5225	3158		0.485	3158		0.5872
3159		0.7225	3159	aberrant	0.1184	3159		0.6449
3160		0.605	3160	aberrant	0.1368	3160		0.5029
3161		0.4119	3161		0.1694	3161		0.6144
3162		0.6896	3162		0.223	3162		0.5499
3163		0.6327	3163	aberrant	0.1467	3163	aberrant	0.1137
3164		0.6446	3164		0.2249	3164		0.6449
3165		0.6896	3165		0.486	3165		0.6449
3166		0.6383	3166		0.4073	3166		0.6449
3167		0.5623	3167		0.486	3167		0.6449
3168		0.6682	3168		0.486	3168		0.6449
3169		0.643	3169		0.486	3169		0.6449
3170		0.5869	3170		0.486	3170		0.6449
3171		0.5262	3171		0.486	3171		0.4542
3172		0.6456	3172		0.4522	3172		0.5299
3173		0.6164	3173		0.4082	3173		0.4244
3174		0.5173	3174		0.486	3174		0.6449
3175		0.3145	3175		0.486	3175		0.6449
3176		0.4751	3176		0.486	3176		0.6449
3177		0.333	3177		0.486	3177		0.4782
3178		0.3724	3178		0.486	3178		0.5732
3179		0.5061	3179		0.3928	3179		0.5897
3180		0.4473	3180		0.486	3180		0.6449
3181		0.6896	3181		0.486	3181		0.5656
3182		0.6446	3182		0.486	3182		0.5656
3183	aberrant	0.239	3183		0.486	3183		0.507
3184		0.6896	3184		0.486	3184		0.4175
3185	aberrant	0.0865	3185		0.486	3185		0.3486
3186		0.4663	3186		0.486	3186		0.4552
3187		0.6896	3187		0.486	3187		0.6449
3188		0.6896	3188		0.4485	3188		0.4189
3189		0.636	3189		0.486	3189		0.6144
3190		0.4115	3190		0.486	3190		0.6144
3191		0.4627	3191		0.4752	3191		0.5763
3192		0.5935	3192		0.4719	3192		0.6144
3193		0.4933	3193		0.5343	3193		0.6144
3194		0.513	3194		0.5003	3194		0.5885
3195		0.3789	3195		0.5164	3195		0.6449
3196		0.4655	3196		0.4483	3196		0.3868

3197		0.2633	3197		0.4298	3197		0.6449
3198		0.2588	3198		0.5114	3198		0.4618

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3199		0.2963	3199		0.1549	3199		0.5125
3200	aberrant	0.2087	3200		0.1699	3200		0.6144
3201	aberrant	0.0146	3201		0.1568	3201		0.3339
3202	aberrant	0.193	3202		0.1699	3202		0.3774
3203	aberrant	0.1674	3203	aberrant	0.1189	3203		0.4353
3204	aberrant	0.2291	3204		0.1646	3204		0.5178
3205		0.2616	3205	aberrant	0.1517	3205	aberrant	0.3029
3206		0.2876	3206		0.5236	3206		0.5244
3207		0.4301	3207		0.5343	3207		0.5642
3208		0.402	3208		0.4719	3208		0.6144
3209		0.4301	3209		0.5343	3209		0.5671
3210		0.4245	3210		0.5343	3210		0.6144
3211		0.2506	3211		0.5343	3211		0.4781
3212		0.2616	3212		0.5343	3212		0.4879
3213		0.3958	3213		0.5114	3213		0.3598
3214		0.4301	3214		0.5343	3214		0.6144
3215		0.4196	3215		0.3238	3215		0.35
3216		0.3444	3216		0.5343	3216		0.5644
3217		0.3958	3217		0.5343	3217	aberrant	0.0938
3218		0.4229	3218		0.5289	3218		0.5347
3219		0.4454	3219		0.5343	3219		0.4421
3220		0.4967	3220		0.5343	3220	aberrant	0.2242
3221		0.3569	3221		0.5343	3221		0.6144
3222		0.4513	3222		0.4828	3222		0.5093
3223		0.3753	3223	aberrant	0.0994	3223		0.3226
3224		0.3569	3224	aberrant	0.0994	3224		0.3344
3225		0.3728	3225	aberrant	0.0994	3225		0.3911
3226		0.4147	3226	aberrant	0.0994	3226		0.3351
3227		0.5062	3227	aberrant	0.069	3227		0.4107
3228		0.5135	3228	aberrant	0.0994	3228		0.4159
3229		0.4349	3229	aberrant	0.0994	3229		0.4423
3230		0.4037	3230	aberrant	0.0994	3230		0.6449
3231		0.4085	3231	aberrant	0.0994	3231		0.3703
3232		0.3064	3232		0.5088	3232		0.6449
3233		0.5082	3233		0.4325	3233		0.403
3234		0.71	3234		0.3066	3234	aberrant	0.2744
3235		0.4912	3235		0.3066	3235		0.4407
3236		0.6101	3236		0.5097	3236		0.4007
3237		0.5884	3237		1	3237		0.4245

3238		0.71	3238		0.4708	3238		0.4565
3239		0.71	3239		0.3635	3239		0.565

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3240		0.71	3240		0.3973	3240		0.6449
3241		0.71	3241		0.3732	3241	aberrant	0.213
3242		0.5121	3242		0.4798	3242		0.4792
3243		0.5936	3243		0.3353	3243		0.4792
3244		0.71	3244		0.4798	3244		0.3511
3245		0.5326	3245		0.3816	3245		0.4778
3246		0.538	3246		0.3732	3246		0.4186
3247		0.5085	3247		0.5123	3247		0.377
3248		0.4621	3248		0.5016	3248		0.5143
3249		0.6137	3249		0.4025	3249	aberrant	0.2885
3250		0.4821	3250		0.4514	3250		0.4302
3251		0.4982	3251		0.4737	3251	aberrant	0.2339
3252		0.5197	3252		0.4922	3252	aberrant	0.1893
3253		0.5127	3253		0.4514	3253		0.6449
3254		0.4954	3254		0.5343	3254		0.6449
3255		0.6874	3255		0.4514	3255		0.5839
3256		0.3562	3256		0.4514	3256		0.4057
3257		0.5932	3257		0.4846	3257		0.4057
3258		0.6526	3258		0.5343	3258		0.4186
3259		0.5084	3259		0.5343	3259		0.4186
3260		0.4633	3260		0.5343	3260		0.4186
3261		0.6032	3261		0.4846	3261		0.4186
3262		0.5085	3262		0.5123	3262		0.4186
3263		0.5085	3263	aberrant	0.0994	3263	aberrant	0.2942
3264		0.3964	3264	aberrant	0.0676	3264		0.4924
3265		0.5085	3265	aberrant	0.0994	3265		0.3918
3266		0.6435	3266	aberrant	0.0994	3266		0.6449
3267		0.6896	3267		0.3798	3267		0.54
3268		0.71	3268		0.3798	3268		0.4778
3269		0.5339	3269		0.3798	3269		0.4637
3270		0.71	3270		0.3449	3270		0.4778
3271		0.6014	3271		0.3798	3271		0.5483
3272		0.44	3272		0.3798	3272		0.3163
3273		0.497	3273		0.3798	3273		0.4399
3274		0.544	3274		0.3798	3274		0.5953
3275		0.6435	3275		0.3798	3275		0.3655
3276		0.3524	3276		0.3798	3276		0.3655
3277		0.4198	3277		0.5236	3277		0.3866
3278		0.5343	3278		0.5119	3278	aberrant	0.0038

3279		0.4105	3279		0.5236	3279		0.6099
3280		0.3334	3280		0.5343	3280	aberrant	0.0708

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3281		0.4204	3281		0.5343	3281		0.3503
3282		0.361	3282		0.5343	3282		0.3297
3283		0.3918	3283		0.5343	3283		0.5466
3284		0.3317	3284		0.5343	3284		0.621
3285		0.4403	3285		0.5343	3285		0.4539
3286		0.4445	3286		0.5299	3286		0.5218
3287		0.482	3287	aberrant	0.0062	3287		0.576
3288		0.4793	3288		0.2947	3288		0.5614
3289		0.5504	3289	aberrant	0.147	3289		0.5419
3290		0.4393	3290		0.225	3290		0.454
3291		0.4591	3291	aberrant	0.0817	3291		0.6449
3292		0.4859	3292		0.1955	3292		0.563
3293		0.4665	3293	aberrant	0.0111	3293		0.6161
3294		0.482	3294	aberrant	0.0783	3294		0.6449
3295		0.4665	3295		0.2057	3295		0.6261
3296		0.4839	3296		0.4768	3296		0.5006
3297		0.4569	3297		0.486	3297		0.6449
3298		0.2783	3298		0.4774	3298		0.6449
3299		0.4585	3299		0.434	3299		0.6449
3300		0.532	3300		0.434	3300		0.5047
3301		0.48	3301		0.3949	3301		0.6449
3302		0.4807	3302		0.4351	3302		0.5764
3303		0.4419	3303		0.3607	3303		0.6449
3304		0.6896	3304		0.434	3304		0.6099
3305		0.7225	3305		0.434	3305		0.6449
3306		0.6053	3306		0.3607	3306		0.5874
3307		0.6053	3307		0.2372	3307		0.5418
3308		0.71	3308		0.2372	3308		0.6449
3309		0.71	3309		0.2884	3309		0.6042
3310		0.71	3310		0.2884	3310		0.4624
3311		0.71	3311		0.2884	3311		0.6189
3312		0.4728	3312		0.2986	3312		0.601
3313		0.71	3313		0.2986	3313		0.6449
3314		0.71	3314		0.2986	3314		0.4812
3315		0.71	3315		0.2986	3315		0.5104
3316		0.71	3316		0.2723	3316		0.6449
3317		0.71	3317		0.2128	3317		0.6449
3318		0.71	3318		0.2844	3318		0.6449
3319		0.71	3319		0.2986	3319		0.6449

3320		0.71	3320		0.2649	3320		0.6449
3321		0.6491	3321		0.3366	3321		0.5491

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3322		0.71	3322		0.3234	3322		0.5552
3323		0.5157	3323		0.2914	3323		0.5424
3324		0.71	3324		0.2986	3324	aberrant	0.0829
3325	aberrant	0.1644	3325		0.2986	3325		0.5876
3326		0.5192	3326		0.2986	3326		0.5343
3327		0.4863	3327		0.2723	3327		0.6449
3328		0.71	3328		0.2986	3328		0.6449
3329		0.3832	3329		0.2986	3329		0.5712
3330	aberrant	0.1928	3330		0.2813	3330		0.3902
3331		0.6027	3331		0.2986	3331		0.6449
3332		0.3671	3332		0.3302	3332		0.6449
3333		0.3574	3333		0.2986	3333		0.3578
3334		0.3077	3334		0.2986	3334		0.3408
3335		0.3274	3335		0.2723	3335		0.6449
3336		0.2967	3336		0.2986	3336		0.3456
3337		0.3179	3337		0.2986	3337		0.4785
3338		0.3179	3338		0.2986	3338		0.6449
3339		0.2894	3339		0.2986	3339		0.6449
3340		0.3306	3340		0.2986	3340		0.5939
3341		0.3351	3341		0.2986	3341		0.6449
3342		0.3522	3342		0.3893	3342		0.5833
3343		0.352	3343		0.2986	3343		0.4921
3344		0.3421	3344	aberrant	0.114	3344		0.476
3345		0.367	3345	aberrant	0.1009	3345		0.5899
3346		0.3738	3346	aberrant	0.12	3346		0.6449
3347		0.3549	3347	aberrant	0.0545	3347		0.6449
3348		0.2737	3348		0.1521	3348		0.5926
3349		0.5057	3349	aberrant	0.1249	3349		0.5419
3350	aberrant	0.1439	3350		0.1604	3350		0.4909
3351	aberrant	0.0975	3351	aberrant	0.0485	3351		0.5457
3352		0.2606	3352	aberrant	0.0586	3352		0.6449
3353		0.6265	3353		0.1652	3353		0.5808
3354		0.514	3354	aberrant	0.1193	3354		0.6449
3355	aberrant	0.2336	3355	aberrant	0.1108	3355		0.551
3356		0.2899	3356		0.1604	3356		0.591
3357		0.5131	3357	aberrant	0.143	3357		0.6449
3358		0.3535	3358	aberrant	0.1146	3358		0.4691
3359		0.3928	3359	aberrant	0.1406	3359		0.5926
3360		0.3335	3360		0.1976	3360		0.5431

3361		0.4595	3361	aberrant	0.1443	3361		0.4857
3362		0.7006	3362	aberrant	0.1061	3362		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3363	aberrant	0.2357	3363		0.1976	3363		0.5006
3364		0.3894	3364	aberrant	0.1108	3364		0.5808
3365		0.4188	3365		0.1521	3365		0.5518
3366		0.2752	3366	aberrant	0.0662	3366		0.6449
3367		0.4427	3367	aberrant	0.1146	3367		0.5424
3368		0.7362	3368	aberrant	0.1443	3368		0.6449
3369	aberrant	0.1904	3369	aberrant	0.1295	3369		0.5007
3370		0.3183	3370		0.1572	3370		0.6449
3371		0.6873	3371	aberrant	0.0492	3371		0.6449
3372		0.4925	3372	aberrant	0.1268	3372		0.6449
3373	aberrant	0.2187	3373	aberrant	0.1476	3373		0.4223
3374		0.6265	3374	aberrant	0.1166	3374		0.3778
3375		0.4748	3375	aberrant	0.1304	3375		0.4223
3376		0.512	3376	aberrant	0.0994	3376		0.3409
3377		0.3561	3377	aberrant	0.1102	3377		0.3409
3378		0.4829	3378		0.1703	3378		0.4223
3379	aberrant	0.0949	3379	aberrant	0.0847	3379		0.6449
3380		0.7465	3380	aberrant	0.0847	3380		0.5872
3381		0.5502	3381	aberrant	0.0994	3381		0.6449
3382		0.2987	3382	aberrant	0.0994	3382		0.5885
3383		0.4866	3383	aberrant	0.0795	3383		0.4711
3384		0.3409	3384	aberrant	0.0994	3384		0.6449
3385		0.6968	3385	aberrant	0.0994	3385		0.6449
3386		0.2588	3386	aberrant	0.0994	3386		0.6449
3387		0.531	3387	aberrant	0.0994	3387		0.6449
3388		0.7589	3388	aberrant	0.0994	3388		0.6042
3389		0.7292	3389	aberrant	0.0994	3389		0.4223
3390	aberrant	0.1394	3390	aberrant	0.1039	3390		0.4223
3391		0.3161	3391	aberrant	0.0994	3391		0.4223
3392		0.6073	3392	aberrant	0.0994	3392		0.376
3393	aberrant	0.1769	3393	aberrant	0.0642	3393		0.4223
3394		0.7438	3394	aberrant	0.0994	3394		0.4223
3395		0.4869	3395	aberrant	0.0994	3395		0.4223
3396		0.2656	3396	aberrant	0.0555	3396		0.3746
3397		0.3912	3397	aberrant	0.1295	3397		0.4223
3398		0.7351	3398	aberrant	0.0994	3398		0.3746
3399		0.3932	3399	aberrant	0.1404	3399		0.4223
3400		0.66	3400	aberrant	0.0994	3400		0.4223
3401		0.3809	3401	aberrant	0.0847	3401		0.4223

3402		0.2494	3402	aberrant	0.08	3402		0.4117
3403		0.7049	3403	aberrant	0.0847	3403		0.4223

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3404	aberrant	0.2054	3404	aberrant	0.08	3404		0.4223
3405		0.7208	3405	aberrant	0.0994	3405		0.4223
3406		0.7413	3406	aberrant	0.0994	3406		0.4223
3407		0.5384	3407	aberrant	0.0994	3407		0.4851
3408	aberrant	0.1848	3408	aberrant	0.1417	3408		0.3346
3409		0.6584	3409	aberrant	0.1166	3409		0.3831
3410		0.7576	3410		0.157	3410		0.4223
3411		0.6301	3411	aberrant	0.0965	3411		0.6449
3412		0.5673	3412	aberrant	0.1107	3412		0.3745
3413		0.5491	3413	aberrant	0.0862	3413	aberrant	0.2448
3414		0.65	3414	aberrant	0.1107	3414		0.4935
3415		0.2832	3415	aberrant	0.101	3415	aberrant	0.0814
3416		0.2832	3416	aberrant	0.1129	3416	aberrant	0.3013
3417		0.3778	3417	aberrant	0.1234	3417		0.3398
3418		0.3498	3418	aberrant	0.1234	3418		0.449
3419		0.2895	3419	aberrant	0.1107	3419		0.3178
3420		0.2895	3420		0.5194	3420		0.5037
3421		0.4294	3421		0.4975	3421	aberrant	0.104
3422		0.5588	3422		0.5343	3422	aberrant	0.2745
3423		0.71	3423		0.5343	3423		0.4223
3424		0.2832	3424		0.5194	3424		0.3674
3425		0.2832	3425		0.5343	3425		0.3256
3426		0.2828	3426		0.5105	3426		0.3409
3427	aberrant	0.2331	3427		0.5343	3427		0.4223
3428		0.2726	3428		0.5343	3428		0.3746
3429		0.6448	3429		0.5343	3429		0.4059
3430		0.6014	3430		0.4926	3430		0.4223
3431		0.71	3431		0.5194	3431		0.3746
3432		0.6448	3432		0.5194	3432		0.3746
3433		0.5931	3433		0.5343	3433		0.6363
3434		0.6448	3434		0.2628	3434		0.4223
3435		0.6448	3435		0.2602	3435		0.4223
3436		0.6413	3436		0.295	3436		0.4223
3437		0.71	3437		0.3479	3437		0.4223
3438		0.586	3438		0.3665	3438		0.4223
3439		0.6448	3439		0.2905	3439		0.4223
3440		0.71	3440		0.379	3440		0.4223
3441		0.6448	3441		0.3806	3441		0.4223
3442		0.6448	3442		0.4358	3442		0.4223

3443		0.6012	3443		0.3088	3443		0.4223
3444		0.71	3444		0.2682	3444		0.3832

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3445		0.71	3445		0.181	3445		0.4223
3446		0.71	3446	aberrant	0.1269	3446		0.6449
3447		0.71	3447	aberrant	0.065	3447		0.6449
3448		0.4713	3448		0.286	3448		0.6449
3449		0.7014	3449		0.166	3449		0.6449
3450		0.5085	3450		0.2613	3450		0.6449
3451		0.7014	3451		0.1781	3451		0.6449
3452		0.6012	3452		0.1787	3452		0.6449
3453		0.71	3453	aberrant	0.1162	3453		0.6449
3454		0.71	3454	aberrant	0.0776	3454		0.6449
3455		0.71	3455		0.4837	3455		0.6004
3456		0.71	3456		0.4837	3456		0.59
3457		0.3597	3457		0.4837	3457		0.6449
3458		0.5873	3458		0.4837	3458		0.6449
3459		0.5734	3459		0.4837	3459		0.621
3460		0.71	3460		0.4837	3460		0.6449
3461		0.493	3461		0.4837	3461		0.6449
3462		0.71	3462		0.4837	3462		0.6449
3463		0.71	3463		0.4837	3463		0.593
3464		0.5175	3464		0.4837	3464		0.5944
3465		0.5085	3465		0.4837	3465		0.6449
3466		0.5175	3466		0.4837	3466		0.6278
3467	aberrant	0.0567	3467		0.4837	3467		0.4277
3468		0.6444	3468		0.4837	3468		0.5867
3469		0.6455	3469		0.4837	3469		0.6449
3470		0.4875	3470		0.4837	3470		0.358
3471		0.6874	3471		0.4837	3471		0.3733
3472		0.587	3472		0.4837	3472		0.4833
3473		0.5887	3473		0.4837	3473		0.5874
3474		0.6896	3474		0.4837	3474		0.4478
3475		0.6348	3475		0.4837	3475	aberrant	0.1075
3476		0.4572	3476		0.4837	3476		0.6449
3477		0.5192	3477		0.4837	3477		0.5327
3478		0.6896	3478		0.4661	3478		0.6042
3479		0.5813	3479		0.4837	3479		0.5326
3480		0.7014	3480		0.4837	3480		0.3956
3481		0.6896	3481		0.4837	3481		0.6449
3482		0.597	3482		0.4508	3482		0.5992
3483		0.5085	3483		0.4407	3483		0.6449

3484		0.5574	3484	aberrant	0.0705	3484		0.5923
3485		0.4946	3485		0.1664	3485		0.4902

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3486		0.4821	3486		0.2937	3486		0.5857
3487		0.4824	3487	aberrant	0.1315	3487		0.5857
3488		0.4965	3488		0.2616	3488		0.5857
3489		0.2887	3489	aberrant	0.0655	3489		0.5857
3490		0.459	3490		0.2393	3490		0.5857
3491		0.5085	3491		0.2508	3491		0.5857
3492		0.5535	3492		0.2363	3492		0.5857
3493		0.5085	3493		0.2363	3493		0.5857
3494		0.5165	3494		0.2768	3494		0.5857
3495		0.517	3495		0.3107	3495		0.5857
3496		0.4185	3496		0.3468	3496		0.5144
3497		0.4876	3497		0.2231	3497		0.5857
3498		0.5165	3498		0.232	3498		0.5403
3499		0.4824	3499		0.3134	3499		0.5398
3500		0.5165	3500		0.2535	3500		0.5789
3501		0.5238	3501		0.2535	3501		0.7404
3502		0.4676	3502		0.4756	3502		0.6943
3503		0.517	3503		0.7082	3503		0.6813
3504		0.5165	3504		0.2859	3504		0.6132
3505		0.5388	3505		0.4617	3505		0.5789
3506		0.71	3506		0.4535	3506		0.5789
3507		0.71	3507	aberrant	0.104	3507		0.6449
3508		0.6896	3508	aberrant	0.1343	3508		0.6449
3509		0.6896	3509	aberrant	0.1295	3509		0.4625
3510		0.6896	3510	aberrant	0.1295	3510		0.4411
3511		0.6896	3511		0.4399	3511		0.4842
3512		0.6896	3512		0.5343	3512		0.4089
3513		0.6465	3513	aberrant	0.1279	3513		0.5858
3514		0.71	3514		0.35	3514		0.6449
3515		0.6896	3515	aberrant	0.1072	3515		0.5839
3516		0.6471	3516		0.2616	3516		0.5517
3517		0.6063	3517		0.2616	3517		0.5332
3518		0.71	3518		0.4633	3518	aberrant	0.1278
3519		0.6896	3519		0.4633	3519		0.6449
3520		0.5318	3520		0.4951	3520		0.6449
3521		0.6896	3521	aberrant	0.0727	3521		0.6449
3522		0.6896	3522		0.4346	3522		0.6449
3523		0.3979	3523		0.4782	3523		0.4759
3524		0.71	3524		0.2346	3524		0.6449

3525		0.6015	3525		0.2986	3525		0.6382
3526		0.5064	3526		0.2901	3526		0.5389

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3527		0.5029	3527		0.3234	3527		0.5433
3528		0.4723	3528		0.2986	3528		0.5531
3529		0.4237	3529		0.2986	3529		0.3481
3530		0.465	3530		0.3129	3530		0.5458
3531		0.5806	3531		0.3606	3531		0.4105
3532	aberrant	0.1582	3532		0.5343	3532		0.6449
3533	aberrant	0.1582	3533		0.5111	3533		0.6449
3534	aberrant	0.1963	3534		0.3606	3534		0.3546
3535	aberrant	0.1322	3535	aberrant	0.1166	3535		0.5941
3536	aberrant	0.1085	3536	aberrant	0.0994	3536		0.4191
3537	aberrant	0.1322	3537	aberrant	0.1107	3537		0.6449
3538	aberrant	0.2445	3538	aberrant	0.1166	3538		0.6449
3539	aberrant	0.1779	3539	aberrant	0.1166	3539		0.6449
3540		0.465	3540		0.2143	3540		0.591
3541	aberrant	0.1582	3541		0.4837	3541		0.6161
3542	aberrant	0.1582	3542		0.2813	3542		0.5123
3543	aberrant	0.1322	3543		0.4752	3543		0.6449
3544	aberrant	0.1582	3544		0.4773	3544		0.4847
3545	aberrant	0.1582	3545		0.4587	3545		0.6191
3546	aberrant	0.1582	3546		0.4629	3546		0.6449
3547		0.5064	3547		0.3445	3547		0.5485
3548		0.5064	3548		0.3445	3548		0.6042
3549		0.5757	3549		0.3445	3549		0.449
3550		0.5757	3550		0.4085	3550		0.4711
3551		0.5215	3551		0.4609	3551		0.5953
3552		0.5806	3552		0.4568	3552		0.5566
3553		0.2518	3553		0.4609	3553		0.562
3554		0.6447	3554		0.4609	3554		0.6449
3555		0.6874	3555		0.1537	3555		0.572
3556		0.5512	3556	aberrant	-0.0335	3556		0.5407
3557		0.6896	3557		0.3951	3557		0.5387
3558		0.5939	3558		0.3909	3558		0.5419
3559		0.6896	3559		0.3726	3559		0.5885
3560		0.5501	3560		0.4068	3560		0.6449
3561		0.6129	3561		0.4139	3561		0.5939
3562		0.6896	3562		0.1826	3562		0.5834
3563		0.6874	3563		0.4609	3563		0.575
3564		0.71	3564		0.4609	3564		0.518
3565		0.6874	3565		0.4387	3565		0.5034

3566		0.4356	3566		0.4459	3566		0.5089
3567		0.6896	3567		0.4651	3567		0.3699

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3568		0.5345	3568		0.3995	3568		0.501
3569		0.6896	3569		0.4008	3569		0.5129
3570		0.4827	3570		0.357	3570	aberrant	0.2558
3571		0.5936	3571		0.3601	3571		0.4336
3572	aberrant	-0.0671	3572		0.3437	3572		0.6449
3573		0.6896	3573		0.2927	3573		0.5985
3574		0.4849	3574		0.4068	3574		0.5452
3575		0.5141	3575		0.4139	3575		0.4981
3576		0.6896	3576		0.4139	3576		0.4612
3577		0.6896	3577		0.4609	3577		0.4642
3578		0.4432	3578		0.4748	3578		0.594
3579		0.5169	3579		0.4609	3579		0.6449
3580		0.6896	3580		0.4609	3580		0.4841
3581		0.6225	3581		0.4609	3581		0.6449
3582		0.4751	3582		0.4609	3582		0.5666
3583		0.6335	3583		0.4609	3583		0.6449
3584		0.5759	3584		0.4543	3584		0.6449
3585		0.6529	3585		0.1582	3585		0.6189
3586		0.5086	3586	aberrant	0.1289	3586		0.514
3587		0.6896	3587		0.3437	3587		0.4415
3588		0.6367	3588		0.3074	3588		0.5667
3589		0.71	3589		0.3876	3589		0.5132
3590		0.71	3590		0.3587	3590		0.4805
3591		0.6216	3591		0.2565	3591		0.5649
3592		0.6896	3592		0.3809	3592		0.6042
3593		0.71	3593		0.3096	3593		0.6449
3594	aberrant	-0.2227	3594		0.2785	3594		0.4609
3595		0.6896	3595		0.2658	3595		0.6449
3596		0.6223	3596		0.2215	3596		0.5861
3597		0.71	3597		0.3043	3597		0.5945
3598		0.71	3598		0.3032	3598		0.5543
3599		0.6383	3599		0.3062	3599		0.5514
3600		0.6435	3600		0.3744	3600		0.5867
3601		0.71	3601		0.1805	3601		0.5681
3602		0.71	3602		0.2365	3602		0.4527
3603		0.5451	3603	aberrant	0.1138	3603	aberrant	0.0728
3604		0.6896	3604		0.3249	3604		0.6449
3605		0.6435	3605		0.3189	3605	aberrant	0.2378
3606		0.6471	3606		0.2365	3606		0.6449

3607		0.6514	3607		0.3775	3607		0.6449
3608		0.37	3608		0.3413	3608		0.389

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3609		0.5167	3609		0.2315	3609		0.6449
3610		0.5787	3610		0.2968	3610		0.6449
3611		0.656	3611		0.3167	3611		0.6042
3612		0.54	3612		0.2986	3612		0.6449
3613		0.71	3613		0.4061	3613		0.6449
3614		0.6252	3614		0.3539	3614		0.6449
3615		0.71	3615		0.258	3615		0.4863
3616		0.5151	3616		0.3016	3616		0.4739
3617		0.4535	3617		0.3082	3617		0.4514
3618	aberrant	0.2248	3618		0.2106	3618		0.6449
3619		0.5327	3619		0.2522	3619		0.4195
3620		0.71	3620		0.2889	3620		0.3136
3621		0.4475	3621		0.3791	3621	aberrant	-0.1117
3622		0.567	3622		0.2951	3622		0.5633
3623		0.4304	3623		0.3167	3623		0.6449
3624		0.3641	3624		0.3339	3624		0.6449
3625		0.643	3625		0.3231	3625		0.4844
3626		0.71	3626		0.2925	3626		0.5086
3627		0.5491	3627		0.3364	3627		0.5767
3628		0.71	3628		0.2925	3628		0.6449
3629		0.6128	3629		0.2487	3629		0.4803
3630		0.514	3630		0.2925	3630	aberrant	0.3075
3631		0.71	3631		0.3406	3631	aberrant	-0.1213
3632		0.6559	3632		0.2925	3632		0.6449
3633		0.71	3633		0.3032	3633		0.6449
3634		0.71	3634		0.2925	3634	aberrant	0.1962
3635		0.4238	3635		0.2697	3635	aberrant	0.2622
3636	aberrant	0.2044	3636		0.3032	3636		0.5443
3637		0.71	3637		0.2925	3637		0.6449
3638		0.6405	3638		0.1902	3638		0.6449
3639		0.71	3639		0.203	3639		0.6449
3640		0.6471	3640		0.3482	3640		0.5941
3641	aberrant	0.1734	3641		0.3482	3641		0.4377
3642	aberrant	0.1824	3642		0.1894	3642		0.4597
3643	aberrant	0.1824	3643		0.1752	3643		0.6161
3644		0.2511	3644	aberrant	0.0618	3644		0.6449
3645	aberrant	0.1734	3645		0.2925	3645		0.6449
3646	aberrant	0.1824	3646		0.2925	3646		0.6449
3647	aberrant	0.1824	3647		0.2037	3647		0.3991

3648		0.3007	3648		0.3216	3648		0.5416
3649		0.6874	3649		0.2166	3649		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3650		0.59	3650		0.3225	3650		0.4731
3651		0.71	3651		0.2219	3651		0.5942
3652		0.6306	3652		0.302	3652	aberrant	0.2772
3653		0.606	3653		0.3689	3653		0.6278
3654		0.6435	3654		0.3137	3654		0.4792
3655		0.6896	3655		0.2369	3655		0.5432
3656		0.71	3656		0.403	3656		0.4983
3657		0.5474	3657		0.3827	3657		0.5932
3658		0.6482	3658		0.3653	3658		0.6449
3659		0.6896	3659		0.2899	3659		0.4214
3660		0.6412	3660	aberrant	0.0435	3660		0.5246
3661		0.6161	3661		0.2925	3661		0.6449
3662		0.6896	3662	aberrant	0.0064	3662		0.5092
3663		0.6317	3663		0.3364	3663		0.6449
3664		0.6896	3664		0.2442	3664		0.4113
3665		0.617	3665		0.3364	3665		0.5872
3666		0.5	3666		0.3809	3666		0.3635
3667		0.6327	3667		0.2962	3667		0.6449
3668		0.6896	3668		0.4211	3668		0.5229
3669		0.6363	3669		0.332	3669		0.5571
3670		0.5415	3670		0.2925	3670		0.6276
3671		0.6217	3671		0.3791	3671		0.6449
3672		0.5108	3672		0.373	3672		0.6144
3673		0.5096	3673		0.3622	3673		0.5256
3674		0.6874	3674		0.3622	3674		0.5953
3675		0.6317	3675		0.2925	3675		0.6449
3676		0.6896	3676		0.3809	3676		0.5853
3677		0.6896	3677		0.2925	3677		0.6449
3678		0.6412	3678		0.3809	3678		0.6449
3679		0.6505	3679		0.332	3679		0.6449
3680		0.6896	3680		0.3622	3680		0.6449
3681		0.6361	3681		0.2442	3681		0.6449
3682		0.6361	3682		0.2936	3682		0.6036
3683		0.6412	3683		0.3302	3683		0.5165
3684		0.6361	3684		0.3364	3684		0.5445
3685		0.6361	3685		0.3364	3685		0.6449
3686		0.7225	3686		0.2715	3686		0.6449
3687		0.6896	3687		0.2334	3687		0.6449
3688		0.6052	3688		0.2003	3688		0.4057

3689		0.6896	3689		0.2003	3689		0.6449
3690		0.585	3690		0.25	3690		0.5829

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3691		0.5663	3691		0.3032	3691		0.6449
3692		0.5798	3692		0.2353	3692		0.504
3693		0.5665	3693		0.3587	3693		0.3808
3694		0.5522	3694		0.3055	3694		0.5499
3695		0.6896	3695		0.1846	3695		0.6449
3696		0.606	3696		0.4882	3696		0.5953
3697		0.6896	3697		0.5134	3697		0.5574
3698		0.5085	3698		0.497	3698		0.6449
3699		0.5085	3699		0.2925	3699		0.3409
3700		0.6389	3700		0.2145	3700		0.6621
3701		0.5842	3701		0.2925	3701		0.5926
3702		0.6896	3702		0.2925	3702		0.5199
3703		0.6896	3703		0.2925	3703		0.6144
3704		0.6336	3704		0.2669	3704	aberrant	0.2485
3705		0.6017	3705		0.153	3705	aberrant	0.2485
3706		0.6896	3706		0.2701	3706	aberrant	0.2896
3707		0.6896	3707		0.153	3707	aberrant	0.2372
3708		0.6296	3708		0.4211	3708		0.3518
3709		0.6896	3709		0.2315	3709	aberrant	0.2485
3710		0.6896	3710		0.2847	3710	aberrant	0.2485
3711		0.6896	3711		0.3807	3711	aberrant	0.2485
3712		0.6896	3712		0.3349	3712	aberrant	0.2492
3713		0.6896	3713		0.2315	3713		0.6276
3714		0.6502	3714		0.2295	3714		0.6449
3715		0.5485	3715		0.2925	3715		0.6449
3716		0.5013	3716		0.2925	3716		0.6449
3717		0.6896	3717		0.2925	3717		0.6449
3718		0.6896	3718		0.3033	3718		0.5861
3719		0.5588	3719		0.2925	3719		0.6449
3720		0.6896	3720	aberrant	0.0924	3720		0.5221
3721		0.4954	3721		0.5134	3721		0.6034
3722		0.532	3722		0.2658	3722		0.5555
3723		0.5306	3723		0.4182	3723		0.6449
3724		0.4148	3724		0.2722	3724		0.4587
3725		0.3689	3725		0.3183	3725		0.4605
3726		0.3597	3726		0.3183	3726		0.5504
3727		0.464	3727		0.2427	3727		0.5945
3728		0.5085	3728		0.3183	3728		0.3985
3729		0.4512	3729		0.3535	3729		0.5945

3730		0.4754	3730		0.3	3730		0.4145
3731		0.2531	3731		0.3456	3731		0.3337

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3732		0.3597	3732		0.4182	3732		0.3999
3733		0.532	3733		0.3251	3733		0.478
3734		0.532	3734		0.2791	3734		0.5504
3735		0.5505	3735		0.2831	3735		0.4785
3736		0.5567	3736		0.3096	3736		0.463
3737		0.5423	3737		0.2769	3737		0.5352
3738		0.5665	3738		0.2271	3738		0.4561
3739		0.532	3739		0.1817	3739		0.5945
3740		0.5665	3740		0.3	3740		0.4465
3741		0.2531	3741		0.3055	3741		0.4818
3742		0.532	3742		0.2769	3742		0.5685
3743		0.532	3743		0.2769	3743		0.5945
3744		0.532	3744		0.201	3744		0.5945
3745		0.4694	3745		0.3292	3745		0.5483
3746		0.532	3746		0.2658	3746		0.4744
3747		0.5085	3747		0.2616	3747		0.5098
3748		0.3597	3748		0.2242	3748		0.4453
3749		0.4419	3749		0.3096	3749		0.5844
3750		0.5085	3750		0.2925	3750		0.4109
3751		0.3109	3751		0.3418	3751		0.4422
3752		0.5085	3752		0.2412	3752		0.5844
3753		0.4384	3753		0.301	3753		0.6449
3754		0.5074	3754		0.2416	3754		0.6449
3755		0.532	3755		0.2616	3755		0.6261
3756		0.3597	3756		0.2925	3756		0.5853
3757		0.5358	3757		0.226	3757		0.551
3758		0.5001	3758		0.5274	3758		0.5874
3759		0.3579	3759		0.5274	3759		0.6449
3760		0.3597	3760		0.5134	3760		0.6449
3761		0.4171	3761		0.3468	3761		0.6161
3762	aberrant	0.1278	3762		0.4596	3762		0.6449
3763		0.5965	3763		0.4468	3763		0.6161
3764		0.3597	3764		0.2392	3764		0.6449
3765		0.3597	3765		0.2598	3765		0.6131
3766		0.5574	3766		0.2598	3766		0.6301
3767		0.4818	3767		0.3	3767		0.6301
3768	aberrant	0.1904	3768		0.273	3768		0.5483
3769		0.4223	3769		0.2869	3769		0.6301
3770		0.3597	3770		0.234	3770		0.427

3771		0.3597	3771		0.2336	3771		0.3348
3772		0.3597	3772		0.2039	3772		0.3348

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3773	aberrant	0.2313	3773		0.2699	3773		0.3348
3774		0.4306	3774		0.2637	3774		0.3348
3775		0.3597	3775		0.3905	3775		0.3348
3776		0.5085	3776		0.2433	3776		0.3155
3777	aberrant	0.2367	3777		0.2629	3777		0.3348
3778		0.5085	3778		0.2629	3778		0.3348
3779		0.4875	3779		0.2556	3779		0.3348
3780		0.3597	3780		0.2725	3780		0.3348
3781		0.5053	3781		0.2925	3781		0.3348
3782		0.5085	3782		0.2725	3782		0.3348
3783		0.6456	3783		0.2704	3783		0.3348
3784		0.6456	3784		0.19	3784		0.3348
3785		0.365	3785		0.2558	3785		0.3348
3786		0.7082	3786		0.2962	3786		0.3744
3787		0.5769	3787		0.2658	3787		0.4958
3788	aberrant	0.1021	3788		0.3417	3788		0.5514
3789		0.581	3789		0.2925	3789		0.4842
3790		0.7225	3790		0.222	3790		0.6206
3791	aberrant	0.164	3791		0.2295	3791		0.4986
3792	aberrant	0.164	3792		0.2122	3792		0.5518
3793	aberrant	0.1868	3793		0.4665	3793		0.4643
3794	aberrant	0.1868	3794		0.3183	3794		0.5299
3795	aberrant	0.164	3795		0.26	3795		0.5263
3796	aberrant	0.164	3796		0.3911	3796		0.6398
3797	aberrant	0.1868	3797		0.2601	3797		0.6449
3798	aberrant	0.164	3798		0.2812	3798		0.6276
3799	aberrant	0.164	3799		0.2851	3799		0.5921
3800	aberrant	0.164	3800		0.2877	3800		0.5979
3801	aberrant	0.164	3801		0.2869	3801		0.5572
3802	aberrant	0.164	3802		0.5274	3802		0.3668
3803	aberrant	0.164	3803		0.3008	3803		0.6276
3804	aberrant	0.164	3804		0.226	3804		0.6449
3805	aberrant	0.1868	3805		0.226	3805		0.5979
3806	aberrant	0.1868	3806		0.267	3806		0.6276
3807	aberrant	0.1868	3807		0.2659	3807		0.459
3808	aberrant	0.1868	3808		0.2925	3808		0.6276
3809	aberrant	0.1868	3809		0.2877	3809		0.4235
3810		0.3262	3810		0.2925	3810		0.6011
3811	aberrant	0.1868	3811		0.3055	3811		0.5381

3812	aberrant	0.1868	3812		0.2877	3812		0.5553
3813	aberrant	0.1868	3813		0.5298	3813		0.6144

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3814	aberrant	0.1868	3814		0.5298	3814		0.5587
3815	aberrant	0.1868	3815		0.2925	3815		0.4761
3816		0.4696	3816		0.2925	3816		0.6449
3817	aberrant	0.1868	3817		0.2315	3817		0.5853
3818	aberrant	0.1868	3818		0.2072	3818		0.5206
3819	aberrant	0.1868	3819		0.2877	3819		0.5866
3820	aberrant	0.1549	3820		0.2619	3820		0.5268
3821	aberrant	0.1868	3821		0.3012	3821		0.6449
3822	aberrant	0.1868	3822		0.2578	3822		0.5712
3823	aberrant	0.1868	3823		0.2809	3823		0.6449
3824	aberrant	0.1868	3824		0.2875	3824		0.5626
3825		0.5982	3825		0.2925	3825		0.6002
3826	aberrant	0.1868	3826		0.3055	3826		0.5714
3827	aberrant	0.1868	3827		0.242	3827		0.4921
3828	aberrant	0.1868	3828		0.2079	3828		0.6449
3829	aberrant	0.1868	3829		0.4338	3829		0.6449
3830		0.7443	3830		0.3048	3830		0.6449
3831		0.7443	3831		0.3396	3831		0.5939
3832		0.7443	3832		0.2925	3832		0.6449
3833		0.7443	3833		0.2925	3833		0.5652
3834		0.5979	3834		0.2734	3834		0.6449
3835		0.6219	3835		0.2336	3835		0.5872
3836		0.7443	3836		0.231	3836		0.5268
3837		0.3473	3837		0.2879	3837		0.6449
3838		0.7443	3838		0.3096	3838		0.6449
3839		0.6896	3839		0.3217	3839		0.3493
3840		0.71	3840		0.4914	3840		0.6449
3841		0.6896	3841		0.2925	3841		0.6449
3842		0.6896	3842		0.1908	3842		0.6449
3843		0.7225	3843		0.1608	3843		0.6449
3844		0.71	3844		0.2701	3844		0.6449
3845		0.6874	3845		0.3128	3845		0.6425
3846		0.4385	3846		0.2701	3846		0.5665
3847		0.5051	3847		0.2925	3847		0.6449
3848		0.3753	3848		0.2638	3848		0.4242
3849		0.531	3849		0.2558	3849		0.5171
3850		0.3553	3850		0.3273	3850		0.6449
3851		0.5127	3851		0.2507	3851		0.5209
3852		0.4718	3852		0.2574	3852		0.6449

3853		0.4551	3853		0.3032	3853		0.6449
3854		0.4586	3854		0.3032	3854		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3855		0.5751	3855		0.3032	3855		0.4584
3856		0.5751	3856		0.2925	3856		0.4803
3857		0.5072	3857		0.2925	3857		0.5433
3858		0.5142	3858		0.2925	3858		0.6449
3859		0.5751	3859		0.2069	3859		0.5985
3860		0.3813	3860		0.2925	3860		0.6449
3861		0.5751	3861		0.226	3861		0.5885
3862		0.5751	3862		0.2379	3862		0.6449
3863		0.531	3863		0.2375	3863		0.3433
3864		0.5142	3864		0.2925	3864		0.5713
3865		0.4741	3865		0.2925	3865		0.4944
3866		0.5249	3866	aberrant	0.1441	3866		0.5566
3867		0.4665	3867		0.2925	3867		0.5061
3868		0.4934	3868		0.2925	3868		0.5715
3869		0.5751	3869		0.2925	3869		0.5715
3870		0.4665	3870		0.2826	3870		0.5445
3871		0.5751	3871		0.2232	3871		0.5715
3872		0.426	3872		0.2392	3872		0.5715
3873		0.5062	3873		0.2658	3873		0.5335
3874		0.3813	3874		0.2274	3874		0.5715
3875		0.3813	3875		0.1928	3875		0.6449
3876		0.5302	3876		0.2925	3876		0.6161
3877		0.4993	3877		0.25	3877		0.4284
3878		0.4741	3878		0.202	3878		0.4623
3879		0.3379	3879		0.2269	3879		0.4783
3880		0.4741	3880		0.2429	3880		0.5992
3881		0.5302	3881		0.5077	3881		0.6111
3882		0.5371	3882		0.2925	3882		0.5931
3883		0.5751	3883		0.2335	3883		0.4623
3884		0.5751	3884		0.2658	3884		0.4783
3885		0.5302	3885		0.298	3885		0.4706
3886		0.4293	3886		0.3302	3886		0.6301
3887		0.5703	3887		0.2925	3887		0.6301
3888		0.455	3888		0.2925	3888		0.4144
3889		0.5302	3889		0.5309	3889		0.6105
3890		0.5372	3890		0.2925	3890		0.4358
3891		0.6681	3891		0.2925	3891		0.5514
3892		0.71	3892		0.4914	3892		0.6301
3893		0.5249	3893		0.2789	3893		0.6176

3894		0.5751	3894		0.2925	3894		0.5451
3895		0.6503	3895		0.2769	3895		0.6301

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3896		0.5751	3896		0.3295	3896		0.4641
3897		0.4811	3897		0.2925	3897		0.5453
3898		0.3813	3898		0.2925	3898		0.5033
3899		0.4811	3899		0.2925	3899		0.6301
3900		0.377	3900		0.254	3900		0.6045
3901		0.3597	3901		0.3032	3901		0.6301
3902		0.4829	3902		0.3032	3902		0.5079
3903		0.4492	3903		0.3032	3903		0.6301
3904		0.426	3904		0.2925	3904		0.5332
3905		0.3905	3905		0.2925	3905		0.4724
3906		0.4811	3906		0.2326	3906		0.4066
3907		0.3597	3907		0.2925	3907		0.6301
3908		0.4829	3908		0.2519	3908		0.6301
3909		0.5144	3909		0.1605	3909		0.6301
3910		0.5408	3910		0.3032	3910		0.6301
3911		0.7225	3911		0.2925	3911		0.5332
3912		0.5815	3912		0.3517	3912		0.5332
3913		0.4402	3913		0.3364	3913		0.3946
3914		0.5006	3914		0.2582	3914		0.5278
3915		0.5142	3915		0.3448	3915		0.6449
3916		0.5623	3916		0.2712	3916		0.6449
3917		0.5006	3917		0.2294	3917		0.6425
3918		0.5006	3918		0.2586	3918		0.3152
3919		0.4811	3919		0.2842	3919	aberrant	0.2876
3920		0.4293	3920		0.2774	3920		0.3239
3921		0.5006	3921		0.2774	3921	aberrant	0.2573
3922		0.4579	3922		0.273	3922	aberrant	0.2439
3923		0.4811	3923		0.2245	3923	aberrant	0.2573
3924		0.5122	3924		0.4816	3924		0.3239
3925		0.5393	3925		0.4816	3925		0.3239
3926		0.3908	3926	aberrant	0.0857	3926		0.3114
3927		0.4186	3927	aberrant	0.1072	3927		0.3239
3928		0.6199	3928	aberrant	0.1187	3928	aberrant	0.2876
3929		0.6621	3929	aberrant	0.1008	3929	aberrant	0.1606
3930		0.4702	3930	aberrant	0.1008	3930		0.5715
3931		0.4196	3931	aberrant	0.1008	3931		0.5715
3932		0.4497	3932	aberrant	0.1187	3932		0.3433
3933		0.4293	3933		0.1598	3933		0.3433
3934		0.5006	3934	aberrant	0.0819	3934	aberrant	0.2447

3935		0.4811	3935		0.185	3935		0.3433
3936		0.3593	3936		0.185	3936		0.366

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3937		0.5006	3937	aberrant	0.0819	3937		0.3246
3938		0.5083	3938	aberrant	0.0731	3938	aberrant	0.2806
3939		0.5226	3939	aberrant	0.0724	3939		0.4079
3940		0.6655	3940	aberrant	0.1187	3940		0.366
3941		0.4811	3941		0.1598	3941		0.4079
3942		0.4491	3942	aberrant	0.1187	3942		0.432
3943		0.4503	3943	aberrant	0.0742	3943		0.6449
3944		0.4558	3944	aberrant	0.1362	3944		0.6449
3945		0.4293	3945		0.1807	3945		0.6449
3946		0.3597	3946	aberrant	0.0823	3946		0.6449
3947		0.5006	3947	aberrant	-0.0059	3947		0.6449
3948		0.4811	3948	aberrant	0.0143	3948		0.6449
3949		0.3721	3949	aberrant	0.0617	3949		0.4504
3950		0.3597	3950	aberrant	0.0412	3950		0.4504
3951		0.5006	3951	aberrant	-0.0468	3951		0.4302
3952		0.4603	3952		0.2274	3952		0.4258
3953		0.3597	3953		0.2558	3953		0.4642
3954		0.4234	3954		0.1694	3954		0.4076
3955		0.4491	3955		0.1803	3955		0.6449
3956		0.5006	3956	aberrant	-0.2709	3956		0.6449
3957		0.4417	3957	aberrant	-0.0422	3957		0.6449
3958		0.4811	3958		0.4816	3958		0.6449
3959		0.4811	3959		0.4816	3959		0.6449
3960		0.4543	3960		0.4816	3960		0.6449
3961		0.5006	3961		0.5351	3961		0.6449
3962		0.4811	3962		0.2156	3962		0.6449
3963		0.5006	3963	aberrant	0.122	3963		0.6449
3964		0.4654	3964	aberrant	0.1499	3964		0.6449
3965		0.2644	3965		0.1994	3965		0.5113
3966		0.6545	3966		0.1955	3966		0.6449
3967		0.4467	3967		0.2262	3967		0.6449
3968		0.3947	3968		0.235	3968		0.6449
3969		0.5006	3969		0.1562	3969		0.6449
3970		0.5006	3970		0.3262	3970		0.6449
3971		0.5821	3971		0.3262	3971		0.6449
3972		0.4503	3972		0.3262	3972		0.6449
3973		0.426	3973		0.3262	3973		0.6449
3974		0.577	3974		0.2914	3974		0.6144
3975		0.5006	3975		0.5124	3975		0.6449

3976		0.4811	3976		0.5343	3976		0.6449
3977		0.4454	3977		0.4393	3977		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
3978		0.3268	3978		0.4532	3978		0.6449
3979		0.4811	3979		0.5343	3979		0.5587
3980		0.432	3980		0.5343	3980		0.6449
3981		0.4811	3981		0.5343	3981		0.5939
3982		0.4811	3982		0.5269	3982		0.6449
3983		0.5226	3983		0.5343	3983		0.6449
3984		0.6237	3984		0.487	3984		0.5941
3985		0.4395	3985		0.5343	3985		0.6449
3986		0.4579	3986		0.5343	3986		0.6449
3987		0.4811	3987		0.5343	3987		0.5941
3988		0.4128	3988		0.5097	3988		0.6449
3989		0.4811	3989		0.5343	3989		0.6449
3990		0.4588	3990		0.5271	3990		0.6449
3991		0.4293	3991		0.5343	3991		0.6449
3992		0.4811	3992		0.5343	3992		0.6449
3993		0.4118	3993		0.5343	3993		0.6449
3994		0.4535	3994		0.5343	3994		0.6449
3995		0.4811	3995		0.5343	3995		0.6449
3996		0.5006	3996		0.5343	3996		0.6449
3997		0.4811	3997		0.4257	3997		0.59
3998		0.4811	3998		0.5016	3998		0.6449
3999		0.4811	3999		0.5343	3999		0.6449
4000		0.2965	4000		0.4832	4000		0.6449
4001		0.4811	4001		0.5343	4001		0.6449
4002		0.5952	4002		0.5343	4002		0.6449
4003		0.4579	4003		0.5343	4003		0.6449
4004		0.4811	4004		0.5343	4004		0.6449
4005		0.4811	4005		0.4439	4005		0.6449
4006		0.4552	4006		0.5343	4006		0.6449
4007		0.4442	4007		0.5343	4007		0.6449
4008		0.4811	4008		0.5343	4008		0.6449
4009		0.5006	4009		0.5343	4009		0.5722
4010		0.6327	4010		0.5343	4010		0.6449
4011		0.4811	4011		0.5343	4011		0.6449
4012		0.4811	4012		0.5343	4012		0.5512
4013		0.3597	4013		0.3966	4013		0.6449
4014		0.3597	4014		0.2344	4014		0.6449
4015		0.4811	4015		0.362	4015		0.5424
4016		0.4811	4016		0.3966	4016		0.6449

4017		0.5392	4017		0.3966	4017		0.6449
4018		0.5407	4018		0.3457	4018		0.4914

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4019		0.4811	4019		0.3966	4019		0.6449
4020		0.4811	4020		0.3966	4020		0.5874
4021		0.3747	4021		0.3288	4021		0.5518
4022		0.2581	4022		0.3966	4022		0.6449
4023		0.2898	4023		0.3966	4023		0.6449
4024		0.3597	4024		0.3966	4024		0.6028
4025		0.5108	4025		0.3966	4025		0.53
4026		0.5079	4026		0.3966	4026		0.5113
4027		0.3707	4027		0.3966	4027		0.53
4028		0.4811	4028		0.3966	4028		0.4846
4029		0.4811	4029		0.2607	4029		0.5405
4030		0.4579	4030		0.2864	4030		0.53
4031		0.4123	4031		0.3983	4031		0.4965
4032		0.5006	4032		0.2821	4032		0.53
4033		0.4811	4033		0.4541	4033		0.53
4034		0.4442	4034		0.4069	4034		0.53
4035		0.4811	4035		0.3612	4035		0.5637
4036		0.4837	4036		0.3992	4036		0.53
4037		0.3093	4037		0.3082	4037		0.4858
4038		0.4232	4038		0.4497	4038		0.4436
4039		0.4811	4039		0.4051	4039		0.4779
4040		0.4811	4040		0.3992	4040		0.53
4041	aberrant	0.1091	4041		0.3783	4041		0.479
4042		0.4811	4042		0.4139	4042		0.53
4043		0.2975	4043		0.4816	4043		0.5049
4044		0.3597	4044		0.3338	4044		0.53
4045		0.5543	4045		0.4364	4045		0.4779
4046		0.3597	4046		0.4364	4046		0.433
4047		0.5152	4047		0.4364	4047		0.4858
4048		0.5006	4048		0.4174	4048		0.53
4049		0.4276	4049		0.4174	4049		0.53
4050		0.4811	4050		0.2427	4050		0.53
4051		0.4567	4051		0.4816	4051		0.53
4052		0.4123	4052		0.4816	4052		0.5005
4053		0.4178	4053		0.4816	4053		0.4642
4054		0.5006	4054		0.4816	4054		0.53
4055		0.4811	4055		0.2675	4055		0.485
4056		0.4543	4056		0.3262	4056		0.53
4057		0.5006	4057		0.3262	4057		0.4779

4058		0.5006	4058		0.3262	4058		0.4965
4059		0.4811	4059	aberrant	0.1501	4059		0.53

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4060		0.5006	4060		0.3262	4060		0.4402
4061		0.5435	4061		0.3262	4061		0.53
4062		0.4568	4062		0.3262	4062		0.5166
4063		0.4811	4063		0.3262	4063		0.53
4064		0.4001	4064		0.2662	4064		0.5465
4065		0.4168	4065		0.2948	4065		0.53
4066		0.4061	4066		0.3262	4066		0.53
4067		0.4158	4067		0.2713	4067		0.5405
4068		0.4072	4068		0.3262	4068		0.4858
4069		0.4265	4069		0.2049	4069		0.53
4070		0.4486	4070		0.3262	4070		0.5166
4071		0.4207	4071		0.2716	4071		0.53
4072		0.4354	4072		0.3262	4072		0.53
4073		0.4503	4073		0.3262	4073		0.444
4074		0.461	4074		0.2635	4074		0.4149
4075		0.3865	4075		0.3262	4075		0.5166
4076		0.426	4076		0.5343	4076		0.53
4077		0.4567	4077		0.5343	4077		0.3963
4078		0.5006	4078		0.5343	4078		0.53
4079		0.4719	4079		0.5343	4079		0.5063
4080		0.3597	4080		0.4256	4080		0.5945
4081		0.5765	4081		0.5343	4081		0.5461
4082		0.5006	4082		0.4567	4082		0.5166
4083		0.4811	4083		0.4435	4083		0.6449
4084		0.3597	4084		0.3335	4084		0.5465
4085		0.353	4085		0.323	4085		0.4093
4086		0.4609	4086		0.3523	4086		0.6111
4087		0.5087	4087		0.5343	4087		0.6449
4088		0.4495	4088		0.3411	4088		0.5396
4089		0.4811	4089		0.2913	4089		0.5396
4090		0.3597	4090		0.3411	4090		0.4508
4091		0.4171	4091		0.2981	4091		0.4573
4092		0.4811	4092		0.2981	4092		0.5396
4093		0.3737	4093		0.1587	4093		0.4367
4094		0.3721	4094		0.3411	4094		0.3381
4095		0.4306	4095		0.2913	4095		0.5396
4096		0.4463	4096		0.2401	4096		0.5396
4097		0.4839	4097		0.1852	4097		0.5414
4098		0.4609	4098		0.2442	4098		0.5396

4099		0.3415	4099		0.2913	4099		0.4878
4100		0.5006	4100		0.3411	4100		0.5396

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4101	aberrant	0.2249	4101		0.1962	4101		0.5396
4102		0.4811	4102		0.3411	4102		0.4151
4103		0.5061	4103		0.2981	4103		0.521
4104		0.5006	4104		0.2846	4104		0.5396
4105		0.4417	4105		0.3411	4105		0.5396
4106		0.4811	4106		0.3411	4106		0.5396
4107		0.4159	4107		0.3411	4107		0.5396
4108		0.5142	4108	aberrant	0.1251	4108		0.5396
4109		0.426	4109		0.2913	4109		0.5396
4110		0.4811	4110		0.3411	4110		0.4757
4111		0.5006	4111		0.3411	4111		0.4511
4112		0.4811	4112		0.419	4112		0.4784
4113		0.4811	4113		0.4417	4113		0.5396
4114		0.353	4114		0.4074	4114		0.5396
4115		0.4893	4115		0.3871	4115		0.3869
4116		0.2902	4116		0.4447	4116		0.3305
4117		0.4417	4117		0.4689	4117		0.358
4118		0.7225	4118		0.3826	4118		0.5367
4119		0.71	4119		0.454	4119		0.5396
4120		0.6429	4120		0.4569	4120		0.5396
4121		0.5249	4121		0.4402	4121		0.3651
4122		0.5362	4122		0.4614	4122		0.5396
4123		0.5751	4123		0.3907	4123		0.4851
4124		0.7225	4124		0.3826	4124		0.5396
4125		0.5527	4125		0.4816	4125		0.5396
4126		0.5427	4126		0.4816	4126		0.5396
4127		0.4873	4127		0.4816	4127		0.4451
4128		0.5448	4128		0.3301	4128		0.374
4129		0.565	4129		0.4816	4129		0.5731
4130		0.5527	4130		0.4816	4130		0.4988
4131		0.5958	4131		0.3849	4131		0.5396
4132		0.6896	4132		0.4457	4132		0.5414
4133		0.4285	4133		0.5266	4133		0.5396
4134		0.5751	4134		0.5178	4134		0.5396
4135		0.5706	4135		0.4943	4135		0.4395
4136		0.4022	4136		0.4261	4136		0.4412
4137		0.5142	4137		0.4936	4137		0.3969
4138		0.6304	4138		0.517	4138		0.5396
4139		0.5274	4139		0.4686	4139		0.4807

4140		0.3743	4140		0.5343	4140		0.468
4141		0.5751	4141		0.4934	4141		0.4614

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4142		0.4768	4142		0.4384	4142		0.4766
4143		0.6517	4143		0.4419	4143		0.4881
4144		0.4302	4144		0.5343	4144		0.5396
4145		0.5145	4145		0.5225	4145		0.5396
4146		0.5144	4146		0.5177	4146		0.5396
4147		0.7225	4147		0.5343	4147		0.5396
4148		0.6004	4148		0.5225	4148		0.5714
4149		0.5501	4149		0.5225	4149		0.4904
4150		0.7225	4150		0.4427	4150		0.4922
4151		0.5183	4151		0.5266	4151		0.5396
4152		0.5526	4152		0.5343	4152		0.4912
4153		0.5932	4153		0.5351	4153		0.4367
4154		0.5017	4154		0.3353	4154		0.5396
4155		0.3784	4155		0.3617	4155		0.5396
4156		0.5025	4156		0.3809	4156		0.5396
4157		0.5865	4157		0.3809	4157		0.5029
4158		0.5047	4158		0.4047	4158		0.5393
4159		0.5823	4159		0.3353	4159		0.5396
4160		0.4943	4160		0.3353	4160		0.4469
4161		0.6896	4161		0.3809	4161		0.4881
4162		0.5865	4162		0.3809	4162		0.5396
4163		0.5527	4163		0.3809	4163		0.5414
4164		0.6588	4164		0.3529	4164		0.5731
4165		0.6896	4165		0.3658	4165		0.4434
4166		0.5751	4166		0.3353	4166		0.5106
4167		0.5426	4167		0.3809	4167		0.4826
4168		0.6209	4168		0.3529	4168		0.4506
4169		0.5046	4169		0.3529	4169		0.3684
4170		0.5454	4170		0.3809	4170		0.4829
4171		0.5738	4171		0.3	4171		0.4922
4172		0.5124	4172		0.3553	4172		0.5396
4173		0.5946	4173		0.3353	4173		0.4842
4174		0.6874	4174		0.3529	4174		0.5556
4175		0.5896	4175		0.3617	4175		0.4896
4176		0.4273	4176		0.3809	4176		0.5396
4177		0.5302	4177		0.3	4177	aberrant	0.2608
4178		0.7225	4178		0.3351	4178	aberrant	0.2669
4179		0.6214	4179		0.3809	4179		0.5396
4180		0.5249	4180		0.3529	4180		0.5396

4181		0.5478	4181		0.3658	4181	aberrant	0.2522
4182		0.5984	4182		0.3529	4182	aberrant	0.2246

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4183		0.6183	4183		0.2962	4183	aberrant	0.1969
4184		0.5267	4184		0.3881	4184		0.4488
4185		0.6429	4185		0.4648	4185		0.4757
4186		0.6099	4186		0.3669	4186	aberrant	0.2464
4187		0.6896	4187		0.406	4187		0.5396
4188		0.6896	4188		0.4228	4188	aberrant	0.2825
4189		0.5425	4189		0.4933	4189		0.5396
4190		0.5426	4190		0.4559	4190		0.5396
4191		0.532	4191	aberrant	0.1198	4191		0.5396
4192		0.5328	4192		0.3465	4192		0.5396
4193		0.5131	4193	aberrant	0.1427	4193		0.5396
4194		0.5249	4194		0.4079	4194		0.5396
4195		0.6896	4195		0.4085	4195		0.5925
4196		0.2911	4196	aberrant	0.0266	4196		0.6189
4197		0.5178	4197		0.2258	4197		0.561
4198		0.5527	4198		0.4067	4198		0.5964
4199		0.5046	4199		0.4468	4199		0.6449
4200		0.5694	4200		0.4714	4200		0.5423
4201		0.4374	4201		0.2094	4201		0.6449
4202		0.5884	4202		0.3957	4202		0.6189
4203		0.5229	4203		0.409	4203		0.6278
4204		0.5976	4204		0.4177	4204		0.6164
4205		0.4721	4205		0.4019	4205		0.5853
4206		0.4288	4206		0.309	4206		0.3449
4207		0.3597	4207	aberrant	0.037	4207		0.4235
4208		0.71	4208		0.2113	4208		0.6449
4209		0.5868	4209		0.2093	4209		0.5297
4210		0.3635	4210		0.2414	4210		0.5853
4211		0.6487	4211		0.4678	4211		0.516
4212		0.4318	4212		0.4026	4212		0.5053
4213		0.5724	4213		0.2562	4213		0.5582
4214		0.5183	4214	aberrant	0.0907	4214		0.6449
4215		0.5501	4215		0.302	4215		0.6307
4216		0.5252	4216		0.2489	4216		0.43
4217		0.4996	4217		0.1911	4217		0.5483
4218		0.2533	4218		0.1911	4218		0.5274
4219		0.7225	4219		0.2619	4219		0.6449
4220		0.4367	4220		0.217	4220		0.6449
4221		0.473	4221		0.2412	4221		0.6449

4222		0.5432	4222		0.2499	4222		0.5165
4223		0.7225	4223		0.2376	4223		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4224		0.4433	4224		0.2499	4224		0.6449
4225		0.2911	4225		0.2941	4225		0.5698
4226		0.3597	4226		0.3029	4226		0.6449
4227		0.5121	4227		0.3297	4227		0.5427
4228		0.6099	4228		0.3292	4228		0.6449
4229		0.7225	4229		0.3217	4229		0.6449
4230		0.6488	4230		0.2531	4230		0.4567
4231		0.5407	4231		0.3029	4231		0.6449
4232	aberrant	0.2448	4232		0.2978	4232		0.6449
4233		0.5345	4233		0.2625	4233		0.6449
4234		0.6084	4234		0.2838	4234		0.6449
4235		0.4328	4235		0.2941	4235		0.6449
4236		0.426	4236		0.2541	4236		0.6449
4237		0.5751	4237		0.3297	4237		0.5531
4238		0.611	4238		0.2838	4238		0.6449
4239		0.7225	4239		0.23	4239		0.4864
4240		0.4759	4240		0.3096	4240		0.6449
4241		0.5648	4241		0.1981	4241		0.5427
4242		0.3624	4242		0.3603	4242		0.6261
4243		0.5152	4243		0.4481	4243		0.6449
4244		0.4915	4244		0.4818	4244		0.6261
4245		0.5382	4245		0.4312	4245		0.3577
4246		0.6214	4246		0.4137	4246		0.3577
4247		0.71	4247		0.5236	4247		0.3577
4248		0.5751	4248		0.5027	4248		0.3577
4249		0.5406	4249		0.5343	4249		0.6144
4250		0.71	4250		0.4677	4250		0.3131
4251		0.5064	4251		0.5343	4251		0.3902
4252		0.6481	4252		0.5017	4252		0.3238
4253		0.412	4253		0.4613	4253		0.3902
4254		0.71	4254		0.472	4254		0.351
4255		0.5527	4255		0.5087	4255		0.3516
4256		0.3317	4256		0.5343	4256		0.4358
4257		0.5081	4257		0.5343	4257		0.3243
4258		0.71	4258		0.5236	4258		0.3902
4259		0.6896	4259	aberrant	0.0955	4259		0.3902
4260		0.4934	4260	aberrant	0.1498	4260		0.3902
4261		0.6588	4261	aberrant	0.1073	4261		0.5051
4262		0.4613	4262	aberrant	0.0356	4262		0.3642

4263		0.5319	4263	aberrant	0.1144	4263	aberrant	0.2862
4264		0.5166	4264	aberrant	0.0671	4264		0.3902

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4265		0.4774	4265	aberrant	0.1151	4265		0.3422
4266		0.497	4266	aberrant	0.1178	4266		0.3902
4267		0.5721	4267	aberrant	0.1089	4267		0.3973
4268		0.5183	4268		0.4867	4268		0.3902
4269		0.5152	4269		0.4571	4269		0.3902
4270		0.5382	4270		0.5343	4270		0.3688
4271		0.4868	4271		0.4874	4271		0.3975
4272		0.5416	4272		0.4802	4272		0.3902
4273		0.4648	4273		0.4605	4273	aberrant	0.2892
4274		0.6156	4274		0.3599	4274		0.325
4275		0.5535	4275		0.3971	4275		0.4011
4276		0.3552	4276		0.3599	4276		0.3973
4277		0.7225	4277		0.4288	4277		0.3902
4278		0.5281	4278		0.3992	4278		0.4011
4279		0.5542	4279		0.4273	4279	aberrant	0.2932
4280		0.7225	4280	aberrant	-0.0905	4280		0.3902
4281		0.4136	4281		0.2011	4281		0.3902
4282		0.5932	4282		0.3627	4282		0.4822
4283		0.3597	4283	aberrant	-0.037	4283		0.6449
4284		0.6324	4284	aberrant	0.1072	4284		0.6449
4285		0.6549	4285		0.2713	4285		0.5165
4286		0.5267	4286		0.2713	4286		0.6449
4287		0.5501	4287	aberrant	0.1119	4287		0.6449
4288		0.71	4288		0.3262	4288		0.556
4289		0.7225	4289		0.3262	4289		0.5396
4290		0.4481	4290		0.2713	4290		0.5396
4291		0.5153	4291	aberrant	0.1297	4291		0.5396
4292		0.4639	4292	aberrant	-0.2902	4292		0.3305
4293		0.6377	4293		0.2262	4293		0.5396
4294		0.7225	4294		0.312	4294		0.5396
4295		0.5694	4295	aberrant	-0.1348	4295		0.5396
4296		0.7225	4296		0.1697	4296		0.5396
4297		0.5689	4297		0.2152	4297		0.5061
4298		0.7225	4298		0.1697	4298		0.5061
4299		0.6389	4299	aberrant	0.1352	4299		0.4862
4300		0.7225	4300		0.2154	4300		0.5874
4301		0.7225	4301	aberrant	0.085	4301		0.5668
4302		0.5401	4302		0.2278	4302		0.6449
4303		0.5658	4303		0.2268	4303		0.4302

4304		0.5932	4304		0.2919	4304		0.5927
4305		0.5751	4305		0.2587	4305		0.5211

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4306		0.6014	4306		0.1649	4306		0.5084
4307		0.5082	4307	aberrant	0.0621	4307		0.5153
4308		0.5527	4308		0.2201	4308		0.6004
4309		0.4511	4309	aberrant	0.0972	4309		0.448
4310		0.5527	4310	aberrant	0.0497	4310		0.3263
4311		0.7225	4311		0.1742	4311		0.4808
4312		0.5138	4312	aberrant	0.0838	4312		0.3801
4313		0.2897	4313		0.2985	4313		0.5396
4314		0.6383	4314		0.1561	4314		0.3932
4315		0.5751	4315	aberrant	0.1073	4315		0.5396
4316		0.4347	4316	aberrant	0.0783	4316		0.3325
4317		0.6896	4317	aberrant	0.0357	4317		0.3454
4318		0.4968	4318	aberrant	0.1096	4318		0.5572
4319		0.5225	4319	aberrant	0.0973	4319		0.5572
4320		0.6023	4320	aberrant	0.0663	4320		0.5572
4321		0.6095	4321		0.264	4321		0.5572
4322		0.5365	4322		0.3656	4322		0.5572
4323		0.6169	4323		0.192	4323		0.5572
4324		0.3558	4324	aberrant	0.0257	4324		0.6449
4325		0.5142	4325		0.1946	4325		0.5572
4326		0.6896	4326		0.1946	4326		0.4685
4327		0.5332	4327		0.1728	4327		0.5572
4328		0.6896	4328		0.1663	4328		0.5572
4329		0.527	4329		0.1622	4329		0.5572
4330		0.3508	4330		0.1535	4330		0.5572
4331		0.4081	4331		0.1927	4331		0.5572
4332		0.5751	4332		0.1927	4332		0.5572
4333		0.426	4333		0.2426	4333		0.5618
4334		0.3597	4334		0.2047	4334		0.6449
4335		0.5183	4335		0.1927	4335		0.5572
4336		0.4472	4336		0.1927	4336		0.5572
4337		0.4614	4337		0.1927	4337		0.4028
4338		0.5142	4338	aberrant	0.1356	4338		0.4804
4339		0.5751	4339		0.1622	4339		0.5522
4340		0.4651	4340		0.4748	4340		0.6449
4341		0.5501	4341		0.4748	4341		0.4464
4342		0.6362	4342		0.4748	4342		0.4464
4343		0.4934	4343		0.4748	4343		0.4464
4344		0.5751	4344		0.4748	4344		0.4464

4345		0.4477	4345		0.4748	4345		0.4464
4346		0.4293	4346		0.4748	4346		0.5168

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4347		0.5299	4347		0.4748	4347		0.4464
4348		0.3597	4348		0.5089	4348		0.4137
4349		0.5527	4349		0.4748	4349		0.4048
4350		0.5384	4350		0.4352	4350		0.3628
4351		0.6327	4351		0.4748	4351		0.4464
4352		0.5372	4352		0.4748	4352		0.4044
4353		0.3597	4353		0.4748	4353		0.4464
4354		0.6896	4354		0.4748	4354		0.4464
4355		0.4433	4355		0.4963	4355		0.4464
4356		0.5144	4356		0.4845	4356		0.4464
4357		0.5822	4357		0.1926	4357		0.4464
4358		0.71	4358		0.2494	4358		0.4048
4359		0.3635	4359		0.2494	4359		0.4061
4360		0.71	4360		0.1705	4360		0.4058
4361		0.5302	4361		0.2826	4361		0.3675
4362		0.71	4362		0.2749	4362		0.4464
4363		0.4453	4363		0.2696	4363		0.4048
4364		0.7225	4364		0.1926	4364		0.3168
4365		0.6896	4365		0.4955	4365		0.4111
4366		0.5751	4366		0.4839	4366		0.4464
4367		0.5751	4367		0.4446	4367		0.4464
4368		0.6383	4368		0.4296	4368		0.3584
4369		0.4061	4369		0.4859	4369		0.3811
4370		0.3743	4370		0.5182	4370		0.421
4371		0.3109	4371		0.5343	4371		0.421
4372		0.7225	4372		0.4857	4372	aberrant	-0.0592
4373		0.5142	4373		0.4418	4373		0.3935
4374		0.5121	4374		0.4418	4374		0.3952
4375		0.5952	4375		0.4144	4375		0.4325
4376		0.6377	4376		0.4418	4376		0.3885
4377		0.5236	4377		0.4045	4377		0.421
4378		0.4206	4378		0.4418	4378		0.3952
4379		0.6406	4379		0.421	4379		0.421
4380		0.5797	4380		0.421	4380		0.3114
4381		0.4315	4381		0.4416	4381		0.4596
4382		0.3597	4382		0.4363	4382		0.4596
4383		0.5234	4383		0.5343	4383		0.4596
4384		0.6896	4384		0.5019	4384		0.4309
4385		0.5105	4385		0.4146	4385		0.4596

4386		0.6491	4386		0.5343	4386		0.4596
4387		0.5142	4387		0.4418	4387		0.4596

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4388		0.4894	4388		0.4348	4388		0.4596
4389		0.5144	4389		0.418	4389		0.4596
4390		0.7225	4390		0.4168	4390		0.4596
4391		0.4514	4391		0.4137	4391		0.4596
4392		0.5153	4392		0.3834	4392		0.4661
4393		0.6105	4393		0.4006	4393		0.4596
4394		0.6015	4394		0.4897	4394		0.4596
4395		0.6896	4395		0.4897	4395		0.4596
4396		0.3771	4396		0.5054	4396		0.4596
4397		0.5154	4397		0.5343	4397		0.4596
4398		0.4965	4398		0.2027	4398		0.4596
4399		0.7225	4399		0.1661	4399		0.4596
4400		0.503	4400		0.2173	4400		0.5724
4401		0.3597	4401		0.3577	4401		0.5315
4402	aberrant	0.0185	4402		0.3567	4402		0.5632
4403		0.5142	4403		0.4997	4403		0.5632
4404		0.4551	4404		0.2699	4404		0.5315
4405		0.5121	4405		0.3429	4405		0.5315
4406		0.4702	4406		0.3429	4406		0.5596
4407		0.71	4407		0.3577	4407		0.4909
4408		0.5527	4408		0.4253	4408		0.5315
4409		0.4304	4409		0.2166	4409		0.5315
4410		0.5127	4410		0.3212	4410		0.5315
4411		0.6896	4411		0.4407	4411		0.5577
4412		0.4698	4412		0.5343	4412		0.4207
4413		0.6011	4413		0.1928	4413		0.5292
4414		0.4986	4414		0.494	4414		0.5552
4415		0.3902	4415		0.4407	4415		0.5335
4416		0.6896	4416		0.5371	4416		0.5254
4417		0.5462	4417		0.4816	4417		0.5378
4418		0.5751	4418		0.5343	4418		0.5376
4419		0.4402	4419		0.4407	4419		0.5704
4420		0.4402	4420		0.2166	4420		0.5157
4421		0.5401	4421		0.4356	4421		0.586
4422	aberrant	0.2277	4422		0.2166	4422		0.5157
4423		0.5302	4423		0.5257	4423		0.4228
4424		0.3597	4424		0.3632	4424		0.5089
4425		0.3597	4425		0.5343	4425		0.551
4426		0.3771	4426		0.2601	4426		0.4395

4427		0.4402	4427		0.2761	4427		0.3578
4428		0.384	4428		0.1952	4428		0.4968

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4429		0.5236	4429		0.1952	4429		0.5752
4430		0.4928	4430		0.2925	4430		0.5752
4431		0.5401	4431		0.1975	4431		0.5139
4432		0.5142	4432		0.3528	4432		0.507
4433		0.5724	4433		0.3656	4433		0.5537
4434		0.5236	4434		0.3412	4434		0.586
4435		0.5043	4435		0.2769	4435		0.5941
4436		0.3861	4436		0.2429	4436		0.544
4437		0.5345	4437		0.4696	4437		0.5378
4438		0.5302	4438		0.4468	4438		0.586
4439		0.5549	4439		0.3009	4439		0.5079
4440		0.5995	4440		0.2925	4440		0.5355
4441		0.5751	4441		0.2636	4441		0.4919
4442		0.5153	4442		0.4719	4442		0.5245
4443		0.4402	4443		0.3273	4443		0.5207
4444		0.5153	4444		0.2925	4444		0.5292
4445		0.6896	4445		0.2925	4445		0.4991
4446		0.5925	4446		0.2606	4446		0.4316
4447		0.4603	4447		0.4085	4447		0.6449
4448		0.6482	4448		0.4122	4448		0.5941
4449		0.4657	4449		0.5343	4449		0.6449
4450		0.3597	4450		0.4047	4450		0.5207
4451		0.5925	4451		0.4216	4451		0.6449
4452		0.4938	4452		0.2704	4452		0.5067
4453		0.4239	4453		0.2024	4453		0.5502
4454		0.384	4454		0.2009	4454		0.4567
4455		0.7225	4455		0.2152	4455		0.4752
4456		0.71	4456		0.2133	4456		0.4508
4457		0.581	4457		0.1927	4457		0.4752
4458		0.71	4458		0.1622	4458		0.4752
4459		0.4638	4459		0.4388	4459		0.4752
4460		0.5033	4460		0.4388	4460		0.4752
4461		0.3601	4461		0.2006	4461		0.4658
4462		0.5302	4462	aberrant	0.1188	4462		0.4752
4463		0.5629	4463		0.4631	4463		0.4508
4464		0.6896	4464		0.1658	4464		0.4752
4465		0.7225	4465	aberrant	0.0772	4465		0.6449
4466		0.4466	4466		0.2703	4466		0.4855
4467		0.6896	4467	aberrant	0.148	4467		0.5017

4468		0.4545	4468	aberrant	0.1246	4468		0.4752
4469		0.4747	4469		0.5139	4469		0.4737

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4470		0.5249	4470	aberrant	0.0613	4470		0.4752
4471		0.7225	4471		0.2959	4471		0.4572
4472		0.5183	4472	aberrant	0.1511	4472		0.6449
4473		0.4719	4473		0.2634	4473		0.4855
4474		0.5751	4474		0.2202	4474		0.4658
4475		0.4402	4475		0.2259	4475		0.4752
4476		0.4719	4476		0.2525	4476		0.4855
4477		0.4703	4477	aberrant	0.1416	4477		0.4675
4478		0.6621	4478		0.2497	4478		0.4855
4479		0.32	4479		0.2104	4479		0.4737
4480		0.5751	4480	aberrant	0.035	4480		0.5017
4481		0.7225	4481		0.1789	4481		0.4855
4482		0.7225	4482		0.2136	4482		0.4658
4483		0.3794	4483		0.382	4483		0.4855
4484		0.4364	4484	aberrant	0.0427	4484		0.4855
4485		0.426	4485		0.2641	4485		0.6449
4486		0.513	4486		0.3962	4486		0.6223
4487		0.3597	4487		0.3962	4487		0.5373
4488		0.5174	4488		0.2641	4488		0.5295
4489		0.5698	4489		0.2758	4489		0.5295
4490		0.4239	4490		0.1806	4490		0.5295
4491		0.3597	4491	aberrant	0.0464	4491		0.4627
4492		0.5886	4492	aberrant	-0.0169	4492		0.4987
4493		0.7225	4493	aberrant	-0.0387	4493		0.5373
4494		0.6433	4494	aberrant	0.0771	4494		0.5295
4495		0.4703	4495	aberrant	0.0092	4495		0.5295
4496		0.5184	4496	aberrant	-0.1231	4496		0.5295
4497		0.6896	4497		0.23	4497		0.4627
4498		0.4026	4498		0.2533	4498		0.5295
4499		0.5751	4499	aberrant	0.1431	4499		0.5295
4500		0.4461	4500		0.4585	4500		0.5295
4501		0.3461	4501		0.334	4501		0.5143
4502		0.7225	4502		0.3258	4502		0.5295
4503		0.4703	4503		0.4874	4503		0.5295
4504		0.5219	4504		0.4037	4504		0.5292
4505		0.4997	4505		0.4774	4505		0.5295
4506		0.4702	4506		0.4772	4506		0.5295
4507		0.6681	4507		0.2504	4507		0.5295
4508		0.5698	4508		0.4059	4508		0.5295

4509		0.3597	4509		0.2356	4509		0.5295
4510		0.4703	4510		0.3538	4510		0.502

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4511		0.4156	4511		0.4772	4511		0.5295
4512		0.3833	4512		0.4371	4512		0.5295
4513		0.5221	4513		0.4772	4513		0.4797
4514		0.5569	4514		0.4609	4514		0.422
4515		0.7225	4515		0.4589	4515		0.494
4516		0.4239	4516		0.3967	4516		0.494
4517		0.5751	4517		0.4885	4517		0.494
4518		0.5408	4518		0.3253	4518		0.422
4519		0.71	4519		0.4179	4519		0.4319
4520		0.5719	4520	aberrant	0.1046	4520		0.494
4521		0.611	4521	aberrant	-0.017	4521		0.494
4522		0.7225	4522		0.2143	4522		0.491
4523		0.6503	4523	aberrant	-0.1136	4523		0.4869
4524		0.5698	4524		0.2778	4524		0.422
4525		0.5093	4525		0.2778	4525		0.494
4526		0.5168	4526		0.1621	4526		0.3707
4527		0.5755	4527	aberrant	-0.2994	4527		0.4883
4528		0.4249	4528		0.4012	4528		0.494
4529		0.7225	4529	aberrant	0.1162	4529		0.4253
4530		0.5181	4530		0.2794	4530		0.494
4531		0.4486	4531		0.2778	4531		0.404
4532		0.4811	4532		0.3164	4532		0.4605
4533		0.6327	4533		0.2794	4533		0.4617
4534		0.3597	4534		0.3164	4534		0.459
4535		0.611	4535	aberrant	0.1035	4535		0.4447
4536		0.448	4536		0.3164	4536		0.4825
4537		0.5667	4537	aberrant	-0.0129	4537		0.494
4538		0.4997	4538		0.3539	4538		0.5049
4539		0.4503	4539	aberrant	0.0782	4539		0.4242
4540		0.4857	4540		0.3164	4540		0.5038
4541		0.7225	4541		0.3164	4541		0.4445
4542		0.71	4542		0.3164	4542		0.4148
4543		0.7225	4543		0.2807	4543		0.4627
4544		0.4811	4544	aberrant	0.1028	4544		0.3924
4545		0.4106	4545		0.2179	4545		0.5396
4546		0.611	4546		0.2778	4546		0.4627
4547		0.5812	4547		0.2728	4547		0.4676
4548		0.7225	4548		0.2778	4548		0.4693
4549		0.3597	4549		0.3164	4549	aberrant	0.2546

4550		0.7225	4550	aberrant	-0.015	4550	aberrant	0.2913
4551		0.483	4551		0.2292	4551		0.4697

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4552		0.7063	4552		0.2292	4552		0.5684
4553		0.5751	4553		0.5025	4553		0.4676
4554		0.5236	4554		0.3156	4554		0.4676
4555		0.4429	4555		0.3094	4555		0.529
4556		0.5822	4556		0.2414	4556		0.5017
4557		0.5146	4557		0.2393	4557		0.4388
4558	aberrant	-0.125	4558		0.5343	4558		0.5192
4559		0.71	4559		0.2292	4559		0.5396
4560		0.5542	4560		0.2489	4560		0.5273
4561		0.4703	4561		0.2393	4561		0.5243
4562		0.3931	4562		0.4287	4562		0.4392
4563		0.5542	4563		0.5025	4563		0.5396
4564		0.71	4564		0.2424	4564		0.5396
4565		0.5537	4565		0.2439	4565		0.5366
4566		0.3597	4566		0.4414	4566		0.5396
4567		0.5644	4567		0.2393	4567		0.5023
4568	aberrant	0.1836	4568		0.5025	4568		0.528
4569		0.6253	4569		0.2393	4569		0.529
4570		0.611	4570		0.5343	4570		0.5396
4571		0.483	4571		0.3216	4571		0.529
4572		0.5149	4572		0.2439	4572		0.4631
4573		0.5854	4573		0.1703	4573		0.5396
4574		0.4926	4574		0.2099	4574		0.5396
4575		0.4628	4575		0.1977	4575		0.4024
4576		0.71	4576		0.1703	4576		0.5467
4577		0.6871	4577		0.4845	4577		0.6721
4578		0.6169	4578		0.4762	4578		0.502
4579		0.6874	4579		0.4402	4579		0.4868
4580		0.5724	4580		0.4727	4580		0.4897
4581		0.4807	4581		0.4774	4581		0.4999
4582		0.4638	4582		0.4692	4582		0.4091
4583		0.6383	4583		0.4628	4583		0.4899
4584		0.4638	4584		0.4337	4584		0.4752
4585		0.7225	4585		0.3972	4585		0.4752
4586		0.4703	4586		0.4818	4586		0.4803
4587		0.2965	4587		0.5039	4587		0.4287
4588		0.4869	4588		0.1815	4588		0.5157
4589		0.4709	4589		0.1961	4589		0.4815
4590		0.4638	4590		0.2279	4590		0.4752

4591		0.2736	4591		0.2632	4591		0.5396
4592		0.5236	4592		0.2335	4592		0.5396

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4593		0.6896	4593		0.2396	4593		0.4903
4594		0.4811	4594		0.3397	4594		0.5551
4595		0.7063	4595		0.2655	4595		0.529
4596		0.4376	4596		0.2335	4596		0.5257
4597		0.4926	4597		0.246	4597		0.5233
4598		0.7225	4598		0.2095	4598		0.5596
4599		0.4928	4599		0.5343	4599		0.5396
4600		0.3847	4600		0.257	4600		0.4808
4601		0.71	4601		0.4955	4601		0.5396
4602		0.6531	4602		0.1714	4602		0.5574
4603		0.6364	4603		0.1833	4603		0.5396
4604		0.3597	4604		0.2971	4604		0.5596
4605		0.4153	4605		0.4824	4605		0.5157
4606	aberrant	0.0495	4606		0.4607	4606		0.4868
4607		0.5751	4607		0.4047	4607		0.5248
4608		0.5175	4608		0.1931	4608		0.3896
4609		0.6545	4609	aberrant	0.1103	4609		0.5096
4610		0.5575	4610	aberrant	0.1398	4610		0.4983
4611		0.5717	4611		0.2399	4611		0.5022
4612		0.5731	4612		0.179	4612		0.5396
4613		0.5527	4613		0.1805	4613		0.5396
4614		0.3103	4614		0.219	4614		0.5396
4615		0.5751	4615		0.2376	4615		0.5396
4616		0.52	4616		0.2057	4616		0.4658
4617		0.6896	4617		0.1922	4617		0.4622
4618		0.4934	4618		0.1796	4618		0.4062
4619		0.3055	4619		0.1855	4619		0.382
4620		0.6531	4620		0.1573	4620		0.4622
4621		0.3103	4621		0.5343	4621		0.4658
4622		0.4133	4622		0.5343	4622		0.3923
4623		0.5807	4623		0.5343	4623		0.4959
4624		0.4636	4624		0.1845	4624		0.3923
4625		0.5045	4625		0.4072	4625		0.3802
4626		0.4824	4626		0.5123	4626		0.4972
4627		0.2751	4627		0.5343	4627		0.4022
4628		0.6896	4628		0.5343	4628		0.3701
4629		0.4485	4629		0.4021	4629		0.4022
4630		0.6502	4630		0.5269	4630		0.4022
4631		0.6241	4631		0.1845	4631		0.4022

4632		0.6896	4632		0.1845	4632		0.4022
4633		0.3103	4633		0.4641	4633		0.4022

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4634		0.311	4634		0.4648	4634		0.4022
4635		0.7225	4635		0.3411	4635		0.5106
4636		0.6017	4636		0.3589	4636	aberrant	0.3047
4637		0.6896	4637		0.4606	4637		0.4022
4638		0.588	4638		0.3589	4638		0.4022
4639		0.5835	4639		0.21	4639		0.4022
4640		0.5835	4640		0.1665	4640		0.3308
4641		0.5751	4641		0.2464	4641		0.4022
4642		0.362	4642	aberrant	-0.0129	4642		0.3763
4643		0.2895	4643	aberrant	0.1243	4643		0.3308
4644		0.3063	4644		0.1795	4644		0.5396
4645		0.3023	4645	aberrant	-0.0275	4645		0.5396
4646		0.3055	4646		0.262	4646		0.4022
4647		0.7225	4647		0.2259	4647		0.3913
4648		0.6896	4648	aberrant	-0.0184	4648		0.3308
4649		0.5751	4649	aberrant	0.1014	4649		0.3282
4650		0.6429	4650		0.2436	4650		0.4022
4651		0.3424	4651		0.2275	4651		0.5396
4652		0.641	4652		0.3008	4652		0.549
4653		0.6635	4653		0.501	4653		0.4022
4654		0.4848	4654		0.5343	4654		0.4928
4655		0.311	4655		0.5343	4655		0.4022
4656		0.6896	4656		0.2979	4656		0.3524
4657		0.71	4657		0.3246	4657		0.5396
4658		0.3728	4658		0.2386	4658		0.3337
4659		0.6115	4659		0.5343	4659		0.3308
4660		0.3055	4660		0.3652	4660		0.3308
4661		0.3086	4661		0.3834	4661		0.4022
4662		0.2751	4662		0.2019	4662		0.5053
4663	aberrant	0.2435	4663	aberrant	0.0758	4663		0.4022
4664		0.656	4664		0.3227	4664		0.5396
4665		0.4848	4665		0.3227	4665		0.5396
4666		0.6412	4666		0.4751	4666		0.3973
4667		0.6327	4667		0.2305	4667		0.426
4668		0.6896	4668		0.2521	4668		0.4677
4669		0.6874	4669		0.3593	4669		0.4622
4670		0.643	4670		0.3589	4670		0.4913
4671		0.3552	4671		0.5343	4671		0.4402
4672		0.4505	4672		0.3061	4672		0.426

4673		0.71	4673		0.4751	4673		0.4829
4674		0.3473	4674		0.4713	4674		0.3586

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4675		0.5097	4675		0.5343	4675		0.4728
4676		0.5751	4676		0.4869	4676		0.4717
4677		0.5311	4677		0.5343	4677		0.4284
4678		0.7225	4678		0.5145	4678		0.4507
4679		0.6896	4679		0.5181	4679		0.3754
4680		0.5097	4680		0.5343	4680		0.4677
4681		0.6032	4681		0.4164	4681		0.4346
4682		0.7225	4682		0.4164	4682		0.4507
4683		0.5535	4683		0.4164	4683		0.3953
4684		0.5104	4684		0.3892	4684		0.4431
4685		0.5104	4685		0.3892	4685		0.5295
4686		0.3552	4686		0.3508	4686		0.5295
4687		0.71	4687		0.3681	4687		0.5043
4688		0.6288	4688		0.4164	4688		0.4857
4689		0.6874	4689		0.3892	4689		0.5043
4690		0.71	4690		0.4164	4690		0.5295
4691		0.71	4691		0.4164	4691		0.5295
4692		0.4845	4692		0.3972	4692		0.4442
4693		0.5751	4693		0.3484	4693		0.4988
4694		0.2856	4694		0.3786	4694		0.5003
4695		0.6716	4695		0.3768	4695		0.5043
4696		0.71	4696		0.2961	4696		0.5206
4697		0.4454	4697		0.3908	4697		0.5295
4698		0.6874	4698		0.3387	4698		0.5295
4699		0.5423	4699		0.3452	4699		0.5043
4700		0.5835	4700		0.3452	4700		0.4994
4701		0.5751	4701		0.2203	4701		0.5295
4702		0.5097	4702		0.1876	4702		0.5295
4703		0.6896	4703		0.1758	4703		0.5052
4704		0.6874	4704		0.2002	4704		0.5295
4705		0.6238	4705		0.1758	4705		0.5295
4706		0.5423	4706		0.2509	4706		0.5043
4707		0.4847	4707		0.2822	4707		0.5295
4708		0.71	4708		0.3895	4708		0.5486
4709		0.5426	4709		0.1758	4709		0.4433
4710		0.4152	4710		0.505	4710		0.4694
4711		0.5835	4711		0.4736	4711		0.5043
4712		0.5527	4712		0.5036	4712		0.5295
4713		0.7225	4713		0.5036	4713		0.5295

4714		0.5456	4714		0.5036	4714		0.4694
4715		0.6503	4715		0.5036	4715		0.5045

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4716		0.5969	4716		0.4797	4716		0.5396
4717		0.6896	4717		0.5343	4717		0.4857
4718		0.6225	4718		0.3985	4718		0.5396
4719		0.6896	4719		0.232	4719		0.5396
4720		0.6896	4720		0.5058	4720		0.5396
4721		0.5743	4721		0.2453	4721		0.5396
4722		0.4133	4722		0.5343	4722		0.5396
4723		0.593	4723		0.4	4723		0.5396
4724		0.5698	4724		0.4396	4724		0.5396
4725		0.373	4725		0.5343	4725		0.4714
4726		0.3425	4726		0.4434	4726		0.5396
4727		0.5499	4727		0.5343	4727		0.5396
4728		0.311	4728		0.4815	4728		0.5396
4729		0.3103	4729		0.4396	4729		0.4449
4730		0.361	4730		0.5343	4730		0.4023
4731		0.5302	4731		0.2149	4731		0.5332
4732		0.7225	4732		0.1767	4732		0.4849
4733		0.5527	4733		0.1589	4733		0.5396
4734		0.7225	4734		0.1842	4734		0.5396
4735	aberrant	0.0988	4735	aberrant	0.078	4735		0.5095
4736		0.5835	4736		0.2671	4736	aberrant	0.2954
4737		0.6896	4737		0.2026	4737		0.3365
4738		0.599	4738		0.1936	4738		0.3551
4739		0.6896	4739		0.2868	4739		0.5396
4740		0.5527	4740		0.3044	4740		0.5396
4741		0.3804	4741		0.2818	4741		0.5794
4742		0.5698	4742		0.2868	4742		0.4438
4743		0.6626	4743		0.342	4743		0.5396
4744		0.5751	4744		0.2297	4744		0.5396
4745		0.5527	4745		0.2901	4745		0.5367
4746		0.6896	4746		0.3643	4746	aberrant	0.3
4747		0.6896	4747		0.3029	4747		0.5396
4748		0.5698	4748	aberrant	0.0856	4748		0.5396
4749		0.6896	4749		0.2077	4749		0.5396
4750		0.5456	4750	aberrant	0.0287	4750		0.5396
4751		0.3128	4751		0.3643	4751		0.5396
4752		0.5426	4752		0.2789	4752		0.5396
4753		0.5401	4753		0.2906	4753		0.318
4754		0.407	4754		0.2906	4754		0.5396

4755		0.4657	4755		0.2795	4755		0.487
4756		0.3655	4756		0.2361	4756		0.5481

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4757		0.6069	4757		0.3105	4757		0.3547
4758		0.4987	4758		0.3995	4758		0.487
4759		0.4064	4759		0.4915	4759		0.5396
4760		0.407	4760		0.4457	4760		0.3275
4761		0.6032	4761		0.3682	4761		0.5396
4762		0.5456	4762		0.4147	4762		0.5396
4763		0.4137	4763		0.4381	4763		0.4693
4764		0.3787	4764		0.4346	4764		0.5038
4765		0.6896	4765		0.4476	4765		0.5038
4766		0.5698	4766		0.4271	4766		0.5396
4767		0.6896	4767		0.4052	4767		0.4693
4768		0.4603	4768		0.4226	4768		0.4693
4769		0.71	4769		0.3949	4769		0.5396
4770		0.6896	4770		0.3596	4770		0.4693
4771		0.3787	4771		0.3983	4771		0.4727
4772		0.6032	4772		0.405	4772		0.519
4773		0.4014	4773		0.4366	4773		0.5396
4774		0.5835	4774		0.4375	4774		0.4857
4775		0.3484	4775		0.1906	4775		0.4099
4776		0.6896	4776		0.1757	4776		0.4393
4777		0.6896	4777		0.1529	4777		0.4174
4778		0.5835	4778		0.5027	4778		0.5396
4779		0.6021	4779		0.4243	4779		0.4949
4780		0.5835	4780		0.4407	4780		0.5396
4781	aberrant	0.2122	4781		0.2375	4781		0.4668
4782		0.461	4782		0.277	4782		0.5396
4783		0.6626	4783		0.2452	4783		0.4522
4784		0.311	4784		0.199	4784		0.5396
4785		0.6044	4785		0.2375	4785		0.4437
4786		0.6429	4786		0.3008	4786		0.4544
4787		0.311	4787		0.2233	4787		0.5396
4788		0.4763	4788		0.3075	4788		0.4081
4789		0.5101	4789		0.5259	4789		0.4949
4790		0.4894	4790		0.5115	4790		0.5396
4791		0.6069	4791		0.4816	4791		0.5367
4792		0.71	4792		0.4987	4792		0.4693
4793		0.6896	4793		0.5119	4793		0.4195
4794		0.5835	4794		0.4265	4794		0.4949
4795		0.4152	4795		0.5118	4795		0.5157

4796		0.5835	4796		0.5343	4796		0.4949
4797		0.5835	4797		0.5271	4797		0.5396

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4798		0.4669	4798		0.5343	4798		0.5396
4799		0.6434	4799		0.3517	4799		0.4949
4800		0.311	4800		0.3306	4800		0.5122
4801		0.4454	4801	aberrant	0.0928	4801		0.456
4802		0.5211	4802	aberrant	0.1064	4802		0.4234
4803		0.5952	4803	aberrant	-0.061	4803		0.4437
4804		0.6896	4804		0.3653	4804		0.4658
4805		0.3701	4805	aberrant	-0.0076	4805		0.4949
4806		0.5496	4806	aberrant	0.0639	4806		0.5396
4807		0.6896	4807		0.2623	4807		0.5082
4808		0.4655	4808		0.3188	4808		0.5396
4809		0.71	4809	aberrant	0.1229	4809		0.4658
4810		0.6659	4810		0.2644	4810		0.4949
4811		0.7225	4811		0.2472	4811		0.4345
4812		0.65	4812		0.2007	4812		0.4529
4813		0.4047	4813		0.1956	4813		0.5396
4814		0.4047	4814		0.2414	4814		0.4658
4815		0.6334	4815		0.2414	4815		0.4658
4816		0.6544	4816		0.2623	4816		0.4048
4817		0.2651	4817		0.2414	4817		0.4631
4818		0.4214	4818		0.2414	4818		0.5396
4819		0.311	4819		0.2414	4819		0.3798
4820		0.2991	4820		0.2342	4820		0.4658
4821		0.3681	4821		0.1937	4821		0.4473
4822		0.71	4822		0.2704	4822		0.4195
4823		0.3885	4823	aberrant	0.1238	4823		0.4121
4824		0.6659	4824	aberrant	0.0769	4824		0.4101
4825		0.3132	4825		0.2568	4825		0.4467
4826		0.311	4826	aberrant	0.1219	4826		0.3546
4827		0.4751	4827	aberrant	0.0271	4827		0.4004
4828		0.3267	4828	aberrant	0.0552	4828		0.4257
4829		0.3787	4829	aberrant	0.1051	4829		0.4121
4830		0.6918	4830		0.5343	4830		0.425
4831		0.6225	4831	aberrant	0.0989	4831		0.425
4832		0.4197	4832	aberrant	0.0747	4832		0.4121
4833		0.6896	4833	aberrant	0.0916	4833		0.4315
4834		0.4062	4834	aberrant	0.1036	4834		0.4121
4835		0.5861	4835	aberrant	0.0544	4835		0.4032
4836		0.311	4836	aberrant	0.0552	4836		0.4014

4837		0.4886	4837	aberrant	0.1045	4837		0.3627
4838		0.6395	4838	aberrant	0.1321	4838		0.4424

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4839		0.5421	4839		0.5164	4839		0.4458
4840		0.3914	4840		0.4914	4840		0.5756
4841		0.4929	4841		0.4742	4841		0.5049
4842		0.71	4842		0.5343	4842		0.4458
4843		0.6361	4843		0.4958	4843		0.5234
4844		0.5564	4844		0.4679	4844		0.4313
4845		0.3906	4845		0.4713	4845		0.5396
4846		0.4925	4846		0.5018	4846		0.4611
4847		0.6896	4847		0.5114	4847		0.5396
4848		0.71	4848		0.5017	4848		0.4881
4849		0.6896	4849		0.4439	4849		0.4385
4850		0.6183	4850		0.5086	4850		0.5396
4851		0.5621	4851		0.5274	4851		0.5396
4852		0.311	4852		0.4391	4852		0.5396
4853		0.6361	4853		0.3832	4853		0.4261
4854		0.3953	4854		0.1758	4854		0.421
4855		0.6896	4855		0.2535	4855		0.4772
4856		0.6032	4856		0.2291	4856		0.4313
4857		0.6896	4857		0.2573	4857		0.421
4858		0.3874	4858		0.2095	4858		0.4038
4859		0.4454	4859		0.2301	4859		0.421
4860		0.3132	4860		0.2191	4860		0.4385
4861		0.3203	4861		0.2259	4861		0.4385
4862		0.5835	4862		0.1653	4862		0.421
4863		0.3103	4863		0.2259	4863		0.421
4864		0.5079	4864		0.2291	4864	aberrant	0.2939
4865		0.5202	4865		0.2591	4865		0.3906
4866		0.6896	4866		0.2291	4866		0.421
4867		0.2622	4867		0.2396	4867		0.4604
4868		0.2775	4868		0.2291	4868		0.4772
4869		0.6073	4869		0.2095	4869		0.4385
4870		0.311	4870		0.2296	4870		0.421
4871		0.6896	4871		0.2095	4871		0.421
4872		0.6659	4872		0.2291	4872		0.4261
4873		0.311	4873		0.2291	4873		0.4631
4874		0.6361	4874		0.2291	4874		0.421
4875		0.6334	4875		0.1573	4875		0.4665
4876		0.5462	4876		0.2466	4876		0.4881
4877		0.6896	4877		0.2291	4877		0.5206

4878		0.6332	4878		0.2829	4878		0.4952
4879		0.4579	4879		0.2291	4879		0.5206

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4880		0.4919	4880		0.4091	4880		0.4922
4881		0.6896	4881		0.2256	4881		0.5305
4882		0.5257	4882		0.1918	4882		0.5206
4883		0.6442	4883		0.2291	4883		0.5206
4884		0.6361	4884		0.2291	4884		0.5295
4885		0.71	4885		0.5343	4885		0.5206
4886		0.5751	4886		0.1865	4886		0.5206
4887		0.7225	4887		0.2376	4887		0.4132
4888		0.6503	4888		0.2071	4888		0.4275
4889		0.4263	4889		0.233	4889		0.4287
4890		0.6656	4890		0.2338	4890		0.4003
4891		0.5397	4891		0.1613	4891		0.4132
4892		0.5154	4892		0.2466	4892		0.4366
4893		0.4777	4893		0.2939	4893		0.3876
4894		0.4082	4894		0.2276	4894		0.4554
4895		0.3597	4895		0.2548	4895		0.4132
4896		0.5989	4896		0.3734	4896		0.4348
4897		0.6121	4897		0.3452	4897		0.4085
4898		0.3206	4898	aberrant	0.0806	4898		0.4132
4899		0.6503	4899		0.1746	4899		0.4132
4900		0.5174	4900	aberrant	0.0364	4900		0.4132
4901		0.2919	4901	aberrant	-0.0316	4901		0.4438
4902		0.3597	4902	aberrant	-0.0387	4902		0.5
4903		0.582	4903	aberrant	0.0408	4903		0.5
4904		0.3914	4904	aberrant	0.0082	4904		0.5
4905		0.5401	4905	aberrant	0.0302	4905		0.5396
4906		0.6442	4906	aberrant	0.1029	4906		0.5038
4907		0.631	4907		0.1711	4907		0.4452
4908		0.5097	4908	aberrant	0.0755	4908		0.3235
4909		0.6896	4909	aberrant	0.0152	4909		0.4618
4910		0.6032	4910	aberrant	-0.1368	4910		0.4321
4911		0.3597	4911	aberrant	-0.0023	4911		0.3449
4912		0.4801	4912		0.5343	4912		0.4067
4913		0.6304	4913		0.202	4913		0.551
4914		0.5535	4914		0.1587	4914		0.4645
4915		0.4951	4915		0.45	4915		0.4067
4916		0.4773	4916		0.5343	4916		0.4864
4917		0.5174	4917		0.4763	4917		0.4519
4918		0.5768	4918		0.5177	4918		0.433

4919		0.7225	4919		0.5343	4919		0.3551
4920		0.6896	4920		0.1831	4920		0.5396

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4921		0.5618	4921		0.4868	4921		0.3235
4922		0.5768	4922		0.3878	4922	aberrant	0.2662
4923		0.4636	4923		0.5145	4923		0.551
4924		0.6896	4924		0.5343	4924		0.4233
4925		0.3597	4925	aberrant	0.0233	4925		0.4282
4926		0.5295	4926		0.2477	4926		0.361
4927		0.5401	4927	aberrant	0.1201	4927		0.4321
4928		0.4607	4928		0.5015	4928		0.3644
4929		0.4876	4929		0.5182	4929		0.4949
4930		0.4402	4930		0.5343	4930		0.4366
4931		0.4858	4931		0.4971	4931		0.4836
4932		0.6241	4932		0.3033	4932		0.4158
4933		0.5751	4933		0.3214	4933		0.4059
4934		0.5174	4934		0.5343	4934		0.4189
4935		0.5527	4935		0.2453	4935		0.4605
4936		0.5426	4936		0.2095	4936		0.3661
4937		0.5329	4937	aberrant	0.0482	4937		0.4926
4938		0.407	4938	aberrant	-0.0098	4938		0.4353
4939		0.6253	4939		0.1986	4939		0.4936
4940		0.4026	4940		0.3383	4940		0.5396
4941		0.7225	4941		0.3845	4941		0.5322
4942		0.4413	4942		0.1544	4942		0.4035
4943	aberrant	0.1519	4943		0.3754	4943		0.4023
4944		0.4872	4944		0.3441	4944		0.4832
4945		0.4539	4945		0.3524	4945		0.4215
4946		0.6253	4946		0.4943	4946		0.4836
4947		0.4848	4947		0.396	4947		0.3821
4948		0.4801	4948		0.3609	4948		0.4051
4949		0.6896	4949		0.3662	4949		0.4367
4950		0.4149	4950		0.4127	4950		0.5001
4951		0.5751	4951		0.3945	4951		0.551
4952		0.4355	4952		0.3521	4952		0.3696
4953		0.3597	4953		0.3644	4953		0.4832
4954		0.6503	4954		0.3789	4954		0.3373
4955		0.5751	4955		0.3272	4955		0.433
4956		0.4031	4956		0.3845	4956		0.4319
4957		0.6304	4957		0.289	4957		0.4506
4958		0.5527	4958		0.3597	4958		0.3731
4959		0.3597	4959		0.4163	4959		0.4569

4960		0.4419	4960		0.4513	4960		0.379
4961		0.407	4961		0.3351	4961		0.4557

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
4962		0.5751	4962		0.3114	4962		0.4557
4963		0.4596	4963		0.3114	4963		0.4752
4964		0.5126	4964		0.4362	4964		0.5049
4965		0.4031	4965		0.355	4965		0.5049
4966		0.5153	4966		0.3453	4966		0.5049
4967		0.71	4967		0.3351	4967		0.5049
4968		0.4903	4968		0.3253	4968		0.5049
4969		0.6896	4969		0.2861	4969		0.5049
4970		0.5527	4970		0.3996	4970		0.4669
4971		0.71	4971		0.406	4971		0.5049
4972		0.5978	4972		0.4752	4972		0.5049
4973		0.6487	4973		0.3464	4973		0.4669
4974		0.6389	4974		0.3245	4974		0.4682
4975		0.7225	4975		0.3603	4975		0.5049
4976		0.5363	4976		0.4752	4976		0.4669
4977		0.5085	4977		0.4752	4977		0.5213
4978		0.6389	4978		0.2446	4978		0.495
4979		0.5174	4979		0.2414	4979		0.503
4980		0.5932	4980		0.3164	4980		0.4369
4981		0.71	4981		0.2778	4981		0.4443
4982		0.4687	4982		0.3609	4982		0.5075
4983		0.6435	4983		0.2778	4983		0.4369
4984		0.5006	4984		0.2778	4984		0.4891
4985		0.7225	4985		0.3282	4985		0.4926
4986		0.5751	4986		0.2876	4986		0.4369
4987		0.6316	4987		0.3441	4987		0.5213
4988		0.6874	4988		0.3114	4988		0.4369
4989		0.71	4989		0.3808	4989		0.4815
4990		0.5639	4990		0.4195	4990		0.4291
4991		0.7225	4991		0.2888	4991		0.5085
4992		0.6896	4992		0.3848	4992		0.4369
4993		0.6141	4993		0.4069	4993		0.395
4994		0.5751	4994		0.3037	4994		0.5085
4995		0.6874	4995		0.2957	4995		0.5085
4996		0.5751	4996		0.3845	4996		0.5803
4997		0.5174	4997		0.3712	4997		0.5803
4998		0.6874	4998		0.4513	4998		0.6449
4999		0.6874	4999		0.4772	4999		0.5497
5000		0.5096	5000		0.3351	5000		0.5302

5001		0.6896	5001		0.4076	5001		0.4414
5002		0.71	5002		0.3482	5002		0.5392

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5003		0.5006	5003		0.452	5003		0.5268
5004		0.6389	5004		0.3028	5004		0.5079
5005		0.3994	5005		0.4725	5005		0.553
5006		0.3597	5006		0.4196	5006		0.5497
5007		0.5096	5007		0.3584	5007		0.4642
5008		0.6896	5008		0.3723	5008		0.5803
5009		0.635	5009		0.3558	5009		0.551
5010		0.5042	5010		0.4506	5010		0.5149
5011		0.5426	5011		0.3378	5011		0.5481
5012		0.5096	5012		0.3457	5012		0.5497
5013		0.4404	5013		0.518	5013		0.5803
5014		0.5365	5014		0.4457	5014		0.5803
5015		0.5978	5015		0.3539	5015		0.5839
5016		0.635	5016		0.3091	5016		0.5839
5017		0.5302	5017		0.3192	5017		0.5897
5018		0.5432	5018		0.308	5018		0.5897
5019		0.5658	5019		0.1862	5019		0.5485
5020		0.3597	5020	aberrant	0.1026	5020		0.4905
5021		0.5978	5021		0.3541	5021		0.4633
5022		0.3597	5022		0.1837	5022		0.4802
5023		0.5096	5023		0.1862	5023		0.5392
5024		0.4903	5024		0.2312	5024		0.5839
5025		0.4321	5025	aberrant	0.1238	5025		0.553
5026		0.71	5026		0.2576	5026		0.5187
5027		0.71	5027		0.351	5027		0.551
5028		0.6316	5028		0.2142	5028		0.4213
5029		0.4915	5029		0.2959	5029		0.6449
5030		0.4082	5030		0.5343	5030		0.6449
5031		0.5787	5031		0.2799	5031		0.6449
5032		0.6896	5032		0.2466	5032		0.4664
5033		0.6435	5033		0.1971	5033		0.5335
5034		0.5527	5034		0.253	5034		0.3661
5035		0.5906	5035		0.2186	5035		0.6449
5036		0.565	5036		0.3541	5036		0.6449
5037		0.6032	5037		0.1864	5037		0.6449
5038		0.5302	5038	aberrant	0.1212	5038		0.6449
5039		0.5742	5039		0.2959	5039		0.6449
5040		0.4369	5040		0.1711	5040		0.6449
5041		0.3597	5041		0.2068	5041		0.6449

5042		0.6656	5042		0.2332	5042		0.6449
5043		0.6874	5043	aberrant	0.1026	5043		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5044		0.71	5044		0.2063	5044		0.6449
5045		0.5016	5045	aberrant	0.116	5045		0.6449
5046		0.3597	5046		0.2361	5046		0.6449
5047		0.4769	5047		0.2312	5047		0.6449
5048		0.3597	5048	aberrant	0.1289	5048		0.6449
5049		0.6874	5049		0.2956	5049		0.3407
5050		0.5767	5050		0.2296	5050		0.3502
5051		0.7225	5051		0.2956	5051		0.3229
5052		0.5751	5052		0.2959	5052		0.3293
5053		0.5011	5053		0.2959	5053		0.3407
5054		0.513	5054		0.2466	5054		0.3502
5055		0.5641	5055		0.227	5055		0.3502
5056		0.3597	5056		0.2568	5056		0.3108
5057		0.4421	5057	aberrant	0.025	5057		0.3502
5058		0.7225	5058	aberrant	0.0064	5058	aberrant	0.2546
5059		0.4769	5059		0.3334	5059		0.374
5060		0.5074	5060	aberrant	0.0613	5060		0.3502
5061		0.5698	5061		0.1952	5061		0.3481
5062		0.6032	5062		0.3217	5062		0.3502
5063		0.6288	5063		0.3087	5063		0.3615
5064		0.3597	5064		0.3864	5064		0.3502
5065		0.6336	5065		0.4816	5065		0.3502
5066		0.5978	5066		0.4816	5066		0.3213
5067		0.6656	5067		0.3133	5067		0.3811
5068		0.4543	5068		0.4816	5068		0.3502
5069		0.5751	5069		0.2487	5069		0.3502
5070		0.4568	5070		0.4816	5070		0.3502
5071		0.7225	5071		0.386	5071		0.4326
5072		0.5254	5072		0.357	5072		0.4181
5073		0.7225	5073		0.4816	5073		0.3696
5074		0.5751	5074		0.4256	5074		0.3293
5075		0.5751	5075		0.4256	5075		0.3371
5076		0.4868	5076		0.3866	5076		0.3502
5077		0.5311	5077		0.425	5077		0.3502
5078		0.6099	5078		0.4816	5078		0.3502
5079		0.4908	5079		0.3859	5079		0.4426
5080		0.5321	5080		0.4816	5080	aberrant	0.2832
5081		0.637	5081		0.4406	5081		0.3502
5082		0.2657	5082		0.4816	5082		0.3498

5083		0.4997	5083		0.3664	5083		0.3407
5084		0.5144	5084		0.3268	5084		0.3454

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5085		0.6071	5085		0.3188	5085		0.3407
5086		0.5321	5086		0.4348	5086		0.3196
5087		0.6429	5087		0.386	5087		0.3502
5088		0.4376	5088		0.4348	5088		0.3558
5089		0.6429	5089		0.4753	5089		0.3502
5090		0.5321	5090		0.4348	5090		0.3502
5091		0.5003	5091		0.3749	5091		0.3502
5092		0.5698	5092		0.2558	5092		0.3789
5093		0.5215	5093		0.388	5093	aberrant	0.2793
5094		0.71	5094		0.4754	5094		0.3323
5095		0.5254	5095		0.3841	5095		0.3811
5096		0.3764	5096		0.2357	5096		0.3502
5097		0.5244	5097	aberrant	-0.108	5097	aberrant	0.2839
5098		0.3597	5098		0.4435	5098		0.3633
5099		0.3597	5099		0.4816	5099		0.3502
5100		0.5534	5100		0.4267	5100		0.4181
5101		0.5119	5101		0.4816	5101		0.3502
5102		0.5214	5102		0.4816	5102		0.3502
5103		0.5215	5103		0.4816	5103	aberrant	0.2982
5104		0.7225	5104		0.5343	5104		0.3185
5105		0.5377	5105		0.4816	5105		0.3502
5106		0.5215	5106		0.4379	5106		0.3502
5107		0.5311	5107		0.4816	5107		0.3502
5108		0.4931	5108		0.4816	5108		0.3502
5109		0.5751	5109		0.4796	5109		0.3502
5110		0.6336	5110		0.4816	5110		0.336
5111		0.5039	5111		0.2336	5111		0.3407
5112		0.5751	5112		0.3962	5112		0.3407
5113		0.5225	5113		0.3962	5113		0.3233
5114		0.5751	5114		0.3012	5114		0.3502
5115		0.5987	5115		0.3062	5115		0.3407
5116		0.5472	5116		0.3765	5116		0.3466
5117		0.71	5117		0.4314	5117		0.4868
5118	aberrant	0.2073	5118		0.2122	5118		0.3502
5119		0.5698	5119		0.4287	5119		0.3502
5120		0.5751	5120		0.472	5120		0.3233
5121		0.2619	5121		0.472	5121		0.3696
5122		0.6429	5122		0.3087	5122	aberrant	0.3087
5123		0.5153	5123		0.3658	5123		0.3502

5124		0.5153	5124		0.4186	5124		0.3502
5125		0.526	5125		0.2033	5125		0.393

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5126		0.6896	5126		0.3087	5126		0.3502
5127		0.5751	5127		0.4816	5127		0.4109
5128		0.6896	5128		0.4158	5128		0.3502
5129		0.2545	5129		0.3658	5129		0.3502
5130		0.6253	5130		0.4816	5130		0.5396
5131		0.4952	5131		0.3503	5131		0.5396
5132		0.6874	5132		0.4816	5132		0.5396
5133		0.5751	5133		0.4319	5133		0.5396
5134		0.5391	5134		0.319	5134		0.5396
5135		0.3597	5135		0.3398	5135		0.4566
5136		0.71	5136		0.4816	5136		0.4615
5137		0.5215	5137		0.4862	5137		0.5396
5138		0.4769	5138		0.4816	5138		0.4615
5139		0.7225	5139		0.4816	5139		0.4566
5140		0.526	5140		0.4816	5140		0.4692
5141		0.5408	5141		0.4287	5141		0.456
5142		0.5139	5142		0.5286	5142		0.456
5143		0.5751	5143		0.5229	5143		0.456
5144		0.2619	5144		0.3318	5144		0.456
5145		0.3597	5145		0.2772	5145		0.456
5146		0.5785	5146		0.3318	5146		0.4261
5147		0.6429	5147		0.5343	5147		0.4261
5148		0.6896	5148		0.2368	5148		0.3275
5149		0.4783	5149		0.4816	5149		0.4131
5150		0.5534	5150		0.4816	5150		0.4529
5151	aberrant	0.2275	5151		0.4218	5151		0.456
5152		0.6874	5152		0.4816	5152		0.456
5153		0.554	5153		0.2263	5153		0.437
5154		0.315	5154		0.4406	5154		0.437
5155		0.5751	5155		0.4816	5155		0.456
5156		0.5626	5156		0.3658	5156		0.4529
5157		0.3093	5157		0.3658	5157		0.5436
5158		0.2788	5158		0.4816	5158		0.5089
5159		0.5348	5159		0.3722	5159		0.6449
5160		0.6896	5160		0.4221	5160		0.4586
5161		0.6874	5161		0.5343	5161		0.6449
5162		0.5791	5162		0.1924	5162		0.5251
5163		0.6757	5163		0.4178	5163		0.5544
5164		0.534	5164		0.371	5164		0.5202

5165		0.4083	5165		0.2928	5165		0.3742
5166		0.5401	5166		0.407	5166		0.4494

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5167		0.7225	5167		0.3192	5167		0.5396
5168		0.4641	5168		0.287	5168		0.5396
5169		0.5527	5169		0.2634	5169		0.5396
5170		0.5174	5170		0.4862	5170		0.3742
5171		0.5434	5171		0.2792	5171		0.446
5172		0.3455	5172		0.3891	5172		0.4323
5173		0.5034	5173		0.4209	5173		0.3742
5174		0.5724	5174		0.3243	5174		0.5396
5175		0.7225	5175		0.2027	5175		0.4819
5176		0.7225	5176		0.3808	5176		0.4072
5177		0.5605	5177		0.3125	5177		0.3268
5178		0.4703	5178		0.326	5178		0.5396
5179		0.6767	5179		0.2608	5179		0.5396
5180		0.5932	5180		0.3703	5180		0.4073
5181		0.4173	5181		0.2233	5181		0.4315
5182		0.4703	5182		0.3729	5182		0.4878
5183		0.3814	5183		0.2544	5183	aberrant	0.302
5184		0.6478	5184		0.4075	5184		0.5
5185		0.4459	5185		0.2788	5185		0.408
5186		0.3597	5186	aberrant	0.0202	5186		0.3742
5187		0.5029	5187		0.1918	5187		0.5396
5188		0.4388	5188		0.4674	5188		0.5
5189		0.4298	5189		0.474	5189		0.4498
5190		0.3971	5190		0.3766	5190		0.4409
5191		0.451	5191		0.329	5191		0.5396
5192		0.5932	5192		0.2583	5192		0.3758
5193		0.303	5193		0.329	5193		0.5396
5194		0.5348	5194		0.2548	5194		0.3757
5195		0.6655	5195		0.3509	5195		0.5
5196		0.5698	5196		0.2997	5196		0.4804
5197		0.4703	5197		0.4137	5197		0.3874
5198		0.3911	5198		0.3648	5198		0.5396
5199		0.5716	5199		0.2587	5199		0.3633
5200		0.3597	5200		0.4816	5200		0.5396
5201		0.5218	5201		0.2767	5201		0.5396
5202		0.5689	5202		0.4816	5202		0.5396
5203		0.5674	5203		0.2316	5203		0.5396
5204		0.5298	5204		0.2664	5204		0.4494
5205		0.376	5205		0.212	5205		0.376

5206		0.5791	5206		0.3125	5206		0.3872
5207		0.7225	5207		0.3296	5207		0.3821

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5208		0.5791	5208		0.4816	5208		0.4494
5209		0.5526	5209		0.3586	5209		0.5292
5210		0.5952	5210		0.371	5210		0.5396
5211		0.647	5211		0.3033	5211		0.4694
5212		0.5298	5212		0.307	5212		0.4351
5213		0.5419	5213		0.2249	5213		0.3498
5214		0.5732	5214		0.2732	5214		0.5396
5215		0.71	5215		0.2785	5215		0.4577
5216		0.71	5216		0.2316	5216		0.5396
5217		0.5194	5217		0.207	5217		0.5292
5218		0.3859	5218		0.2953	5218		0.5
5219		0.3597	5219		0.5068	5219		0.3893
5220		0.5194	5220		0.2341	5220		0.5396
5221		0.5751	5221		0.2587	5221		0.3206
5222	aberrant	0.2275	5222		0.2692	5222		0.4431
5223		0.4459	5223		0.2121	5223		0.4013
5224		0.4703	5224		0.3125	5224		0.369
5225		0.3485	5225		0.2675	5225		0.4449
5226		0.4978	5226		0.3496	5226		0.3207
5227		0.4703	5227		0.3284	5227		0.4167
5228		0.5668	5228		0.3241	5228		0.352
5229		0.3656	5229		0.3163	5229		0.4167
5230		0.6757	5230		0.311	5230		0.3946
5231		0.436	5231	aberrant	-0.1655	5231		0.3703
5232		0.4367	5232		0.2258	5232		0.3209
5233		0.5419	5233		0.1545	5233		0.3913
5234		0.4241	5234		0.2657	5234		0.4306
5235		0.4246	5235		0.2694	5235		0.4598
5236		0.71	5236		0.3187	5236	aberrant	0.249
5237		0.482	5237	aberrant	-0.3427	5237		0.369
5238		0.4803	5238		0.3307	5238		0.3146
5239		0.5209	5239	aberrant	0.1034	5239		0.395
5240		0.5925	5240		0.1528	5240		0.4598
5241		0.5416	5241	aberrant	0.1129	5241		0.4315
5242		0.4431	5242	aberrant	0.0578	5242		0.4598
5243		0.5936	5243	aberrant	0.0816	5243	aberrant	0.2465
5244		0.5751	5244	aberrant	0.0415	5244		0.395
5245		0.4905	5245	aberrant	-0.0402	5245		0.3201
5246		0.71	5246	aberrant	-0.0402	5246		0.3946

5247		0.6225	5247		0.1658	5247		0.4041
5248		0.6896	5248	aberrant	0.0087	5248	aberrant	0.2874

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5249		0.6896	5249	aberrant	-0.0402	5249		0.4503
5250		0.5586	5250		0.3252	5250		0.4023
5251		0.6896	5251		0.4535	5251		0.3946
5252		0.71	5252	aberrant	-0.0498	5252		0.5309
5253		0.71	5253	aberrant	0.0936	5253		0.4487
5254		0.656	5254		0.2583	5254		0.4379
5255		0.5729	5255		0.463	5255		0.4835
5256		0.5429	5256		0.5001	5256		0.4785
5257		0.6896	5257		0.5343	5257		0.5295
5258		0.4781	5258		0.5343	5258		0.3316
5259		0.5751	5259		0.5343	5259		0.5295
5260		0.71	5260		0.5343	5260		0.3314
5261	aberrant	0.028	5261		0.5343	5261		0.5295
5262		0.71	5262		0.4721	5262		0.5019
5263		0.6278	5263		0.5343	5263		0.4491
5264		0.6871	5264		0.5343	5264		0.5295
5265		0.6896	5265		0.5343	5265		0.5295
5266		0.6896	5266		0.4958	5266		0.5486
5267		0.6345	5267		0.3518	5267		0.5373
5268		0.656	5268		0.5343	5268		0.5505
5269		0.71	5269		0.5039	5269		0.5295
5270		0.5224	5270		0.5039	5270		0.3279
5271		0.71	5271		0.5001	5271		0.5295
5272		0.6241	5272		0.5039	5272		0.5295
5273		0.6503	5273		0.5039	5273		0.5295
5274		0.5943	5274		0.5257	5274		0.5295
5275		0.5668	5275		0.5039	5275		0.5295
5276		0.5586	5276		0.463	5276		0.4733
5277		0.5324	5277		0.3523	5277		0.4487
5278		0.6465	5278		0.4027	5278		0.5295
5279		0.6	5279		0.3784	5279		0.5068
5280		0.71	5280		0.3261	5280		0.4484
5281		0.5521	5281		0.2729	5281		0.5218
5282		0.5967	5282		0.2729	5282		0.5518
5283		0.5586	5283		0.3523	5283		0.5486
5284		0.5932	5284		0.3257	5284		0.4581
5285		0.6237	5285		0.3523	5285		0.5295
5286		0.5149	5286		0.4398	5286		0.5295
5287		0.6465	5287		0.4398	5287		0.5295

5288		0.4846	5288		0.3523	5288		0.5295
5289		0.5918	5289		0.1553	5289		0.475

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5290		0.71	5290		0.2966	5290		0.5295
5291		0.5751	5291		0.191	5291		0.4487
5292		0.5707	5292		0.3523	5292		0.5295
5293		0.6896	5293	aberrant	-0.0096	5293		0.4106
5294		0.6896	5294	aberrant	0.104	5294		0.5486
5295		0.5586	5295	aberrant	0.1085	5295		0.5486
5296		0.6896	5296	aberrant	0.0513	5296		0.5373
5297		0.71	5297		0.3679	5297		0.5295
5298		0.5586	5298		0.2707	5298		0.5115
5299		0.6424	5299	aberrant	0.0893	5299		0.5295
5300		0.5627	5300		0.2739	5300		0.4755
5301		0.6	5301		0.3448	5301		0.5295
5302		0.6293	5302		0.4613	5302		0.5295
5303		0.6896	5303		0.5343	5303		0.5295
5304		0.6503	5304		0.5343	5304		0.5295
5305		0.5306	5305		0.5343	5305		0.5373
5306		0.6591	5306		0.5365	5306		0.5295
5307		0.4638	5307		0.5343	5307		0.5295
5308		0.6896	5308		0.5167	5308		0.5295
5309		0.6656	5309		0.4183	5309		0.5295
5310		0.6656	5310		0.4846	5310		0.4377
5311		0.6656	5311		0.5343	5311		0.5295
5312		0.6503	5312		0.4882	5312		0.5021
5313		0.6896	5313		0.5343	5313		0.5373
5314		0.4912	5314		0.5343	5314		0.5295
5315		0.4937	5315		0.504	5315		0.4629
5316		0.6656	5316		0.3843	5316		0.4657
5317		0.6656	5317		0.4183	5317		0.4686
5318		0.6656	5318		0.5259	5318		0.421
5319		0.71	5319		0.5365	5319		0.5295
5320		0.6406	5320		0.5343	5320		0.5233
5321		0.6293	5321		0.4882	5321		0.4641
5322		0.6896	5322		0.5343	5322		0.5295
5323		0.6656	5323		0.4531	5323		0.5295
5324		0.3597	5324		0.505	5324		0.5295
5325		0.6429	5325		0.5049	5325		0.48
5326		0.4459	5326		0.5257	5326		0.5295
5327		0.6293	5327		0.4882	5327		0.5295
5328		0.6896	5328		0.4926	5328		0.5019

5329		0.71	5329		0.4861	5329		0.5373
5330		0.6656	5330		0.5343	5330		0.5295

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5331		0.5886	5331		0.1888	5331		0.6449
5332		0.4296	5332		0.198	5332	aberrant	0.2863
5333		0.6656	5333		0.1934	5333		0.4863
5334		0.599	5334		0.1888	5334		0.4863
5335		0.6059	5335		0.1888	5335		0.4447
5336		0.6896	5336		0.2065	5336		0.421
5337		0.5471	5337		0.2065	5337		0.4435
5338		0.6896	5338		0.2816	5338		0.3454
5339		0.5751	5339		0.1891	5339		0.3371
5340		0.5751	5340		0.2369	5340		0.4725
5341		0.5535	5341		0.2629	5341		0.3678
5342		0.3597	5342		0.2598	5342		0.5732
5343		0.71	5343	aberrant	0.1091	5343		0.3156
5344		0.6099	5344	aberrant	0.1232	5344		0.4009
5345		0.6366	5345	aberrant	0.0145	5345		0.421
5346		0.5827	5346		0.2488	5346		0.5637
5347		0.6656	5347	aberrant	0.1511	5347		0.5698
5348		0.6406	5348	aberrant	0.143	5348		0.4863
5349		0.5638	5349	aberrant	0.0447	5349		0.6449
5350		0.4141	5350		0.4642	5350		0.4863
5351		0.6068	5351		0.4665	5351		0.3915
5352		0.6293	5352		0.4665	5352		0.3952
5353		0.6193	5353		0.5343	5353		0.3938
5354		0.6656	5354		0.4101	5354		0.3952
5355		0.6656	5355		0.1879	5355		0.3938
5356		0.6656	5356		0.1804	5356		0.3952
5357		0.3597	5357	aberrant	0.134	5357		0.3522
5358		0.6896	5358	aberrant	0.0429	5358		0.3522
5359		0.4916	5359		0.1668	5359		0.3952
5360		0.5321	5360		0.1666	5360		0.3952
5361		0.6896	5361		0.1689	5361		0.3952
5362		0.6896	5362	aberrant	0.1453	5362		0.3938
5363		0.5932	5363	aberrant	0.0459	5363		0.5396
5364		0.6896	5364		0.1727	5364		0.4999
5365		0.3597	5365		0.4445	5365		0.5396
5366		0.6099	5366		0.4124	5366		0.5396
5367		0.71	5367		0.4268	5367		0.5396
5368		0.6099	5368		0.3557	5368		0.4999
5369		0.6265	5369		0.4422	5369		0.5396

5370		0.6656	5370		0.3952	5370		0.5396
5371		0.6032	5371		0.3668	5371		0.5396

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5372		0.6896	5372		0.3668	5372		0.5396
5373		0.6896	5373		0.3668	5373		0.5396
5374		0.5777	5374		0.2419	5374		0.5396
5375		0.6896	5375		0.3025	5375		0.5396
5376		0.4585	5376		0.3668	5376		0.5396
5377		0.4916	5377		0.3668	5377		0.4999
5378		0.6389	5378		0.3668	5378		0.5396
5379		0.5724	5379		0.2153	5379		0.5456
5380		0.6293	5380		0.2254	5380		0.6449
5381		0.6265	5381		0.1834	5381		0.5456
5382		0.6656	5382		0.1878	5382		0.51
5383		0.6237	5383		0.2077	5383		0.6276
5384		0.3597	5384		0.2166	5384		0.5456
5385		0.6244	5385		0.1808	5385		0.5885
5386		0.6656	5386		0.2077	5386		0.5926
5387		0.5395	5387	aberrant	0.1342	5387		0.4914
5388		0.6896	5388	aberrant	0.1322	5388		0.5289
5389		0.71	5389		0.1721	5389		0.6449
5390		0.6656	5390		0.5343	5390		0.611
5391		0.6656	5391		0.2671	5391		0.6449
5392		0.6656	5392		0.4681	5392		0.5827
5393		0.6896	5393		0.5343	5393		0.5796
5394		0.4916	5394		0.3895	5394		0.6099
5395		0.6066	5395		0.2014	5395		0.436
5396		0.6896	5396		0.2916	5396		0.6449
5397		0.4916	5397		0.3895	5397		0.567
5398		0.5932	5398		0.3525	5398		0.4858
5399		0.6896	5399		0.2818	5399		0.6449
5400		0.6896	5400		0.3895	5400		0.4257
5401		0.71	5401		0.2522	5401		0.4858
5402		0.6656	5402		0.2818	5402		0.4858
5403		0.5698	5403		0.1787	5403		0.5203
5404		0.6896	5404		0.2263	5404		0.4858
5405		0.6302	5405		0.3257	5405		0.5049
5406		0.6896	5406		0.3895	5406		0.5049
5407		0.628	5407		0.5173	5407		0.3506
5408		0.6656	5408		0.3895	5408		0.5013
5409		0.6896	5409		0.3895	5409		0.3183
5410		0.4449	5410		0.3895	5410		0.4719

5411		0.6293	5411		0.3895	5411		0.4804
5412		0.6896	5412		0.3895	5412		0.3767

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5413		0.441	5413		0.3895	5413		0.3183
5414		0.5703	5414		0.3895	5414		0.494
5415		0.3909	5415		0.3327	5415		0.4503
5416		0.5932	5416		0.5111	5416	aberrant	0.1436
5417		0.6361	5417		0.3157	5417	aberrant	0.0093
5418		0.441	5418		0.3895	5418		0.3661
5419		0.5751	5419		0.3895	5419		0.4219
5420	aberrant	-0.044	5420		0.2014	5420		0.494
5421		0.5307	5421		0.4726	5421		0.379
5422		0.6383	5422		0.3895	5422		0.3591
5423		0.5911	5423		0.3895	5423		0.6449
5424		0.5751	5424		0.5114	5424		0.3739
5425		0.3662	5425		0.501	5425		0.3993
5426		0.4819	5426		0.4768	5426		0.494
5427		0.3597	5427		0.5033	5427		0.4265
5428		0.71	5428		0.4926	5428		0.5045
5429		0.5527	5429		0.4375	5429		0.494
5430		0.6896	5430		0.4648	5430		0.4764
5431	aberrant	0.1011	5431		0.5343	5431		0.4848
5432		0.2476	5432		0.4971	5432		0.4114
5433		0.5418	5433		0.4811	5433	aberrant	0.3086
5434		0.4617	5434	aberrant	0.1498	5434		0.487
5435		0.5751	5435		0.4862	5435		0.4288
5436		0.5751	5436		0.4859	5436		0.4522
5437		0.4293	5437		0.5343	5437		0.453
5438		0.2843	5438		0.5343	5438		0.453
5439		0.6383	5439		0.4971	5439		0.4485
5440		0.71	5440		0.5343	5440		0.4183
5441		0.3597	5441		0.3913	5441		0.4248
5442		0.5943	5442		0.4843	5442	aberrant	0.2667
5443		0.5751	5443		0.4879	5443		0.4434
5444		0.5418	5444		0.468	5444		0.5396
5445		0.6367	5445		0.4971	5445		0.4636
5446		0.2843	5446		0.4952	5446		0.453
5447	aberrant	0.2223	5447		0.1835	5447		0.487
5448		0.4507	5448		0.4967	5448		0.487
5449		0.485	5449		0.2522	5449		0.4453
5450		0.4083	5450		0.2562	5450		0.4896
5451		0.5751	5451		0.5025	5451		0.5396

5452		0.71	5452		0.5343	5452		0.5396
5453		0.5142	5453		0.19	5453		0.4896

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5454		0.4811	5454	aberrant	0.117	5454		0.487
5455		0.71	5455		0.3925	5455		0.3957
5456		0.5125	5456		0.3081	5456		0.5396
5457		0.4479	5457		0.5343	5457		0.5396
5458		0.6896	5458		0.504	5458		0.4026
5459		0.3266	5459	aberrant	-0.1825	5459		0.5396
5460		0.5393	5460		0.2868	5460		0.4633
5461		0.5094	5461		0.2137	5461		0.3614
5462	aberrant	0.1769	5462		0.2521	5462		0.5396
5463		0.6896	5463	aberrant	-0.0417	5463		0.5396
5464		0.5418	5464		0.4982	5464		0.5396
5465		0.5919	5465		0.2409	5465		0.3784
5466		0.4115	5466		0.4567	5466		0.5396
5467		0.5201	5467	aberrant	0.0291	5467		0.4867
5468	aberrant	0.1011	5468	aberrant	0.1435	5468		0.5396
5469		0.5537	5469		0.3383	5469		0.5396
5470		0.5408	5470		0.2885	5470		0.4832
5471		0.508	5471		0.3164	5471		0.4601
5472		0.71	5472		0.3116	5472		0.487
5473		0.5452	5473		0.3525	5473		0.5396
5474		0.6896	5474		0.3539	5474		0.6449
5475		0.6333	5475		0.2161	5475		0.6449
5476		0.6545	5476		0.223	5476		0.6449
5477		0.4934	5477		0.4816	5477		0.6449
5478		0.6896	5478		0.3976	5478		0.6449
5479		0.5418	5479		0.502	5479		0.5874
5480		0.6225	5480		0.158	5480		0.5874
5481		0.71	5481		0.3656	5481		0.6449
5482		0.71	5482		0.4025	5482		0.6449
5483		0.441	5483		0.4816	5483		0.4068
5484		0.5751	5484		0.4754	5484		0.3857
5485		0.4798	5485		0.4209	5485		0.3857
5486		0.3615	5486		0.2652	5486		0.3699
5487		0.3597	5487	aberrant	0.0669	5487		0.3399
5488		0.4418	5488		0.3518	5488		0.4039
5489		0.3597	5489		0.3523	5489		0.3661
5490		0.3597	5490		0.3454	5490		0.3801
5491		0.5408	5491		0.2471	5491		0.6449
5492		0.5813	5492		0.5233	5492		0.6449

5493		0.5733	5493		0.2638	5493		0.6449
5494		0.2682	5494		0.5343	5494		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5495		0.71	5495		0.3895	5495		0.6449
5496		0.6545	5496		0.2014	5496		0.493
5497		0.5952	5497		0.3895	5497		0.6449
5498		0.6896	5498		0.4374	5498		0.6278
5499		0.4367	5499		0.4876	5499		0.6449
5500		0.3597	5500		0.5167	5500		0.5562
5501		0.5155	5501		0.5086	5501		0.6278
5502		0.5393	5502		0.4071	5502		0.6278
5503		0.5329	5503		0.3843	5503		0.4548
5504		0.3597	5504		0.353	5504		0.6449
5505		0.5751	5505		0.5343	5505		0.6449
5506		0.3597	5506		0.4074	5506		0.5657
5507	aberrant	0.2228	5507		0.502	5507		0.6449
5508		0.3597	5508		0.3843	5508		0.6449
5509		0.3597	5509		0.5343	5509		0.6449
5510		0.6533	5510		0.5343	5510		0.6278
5511		0.3597	5511		1	5511		0.6278
5512		0.4488	5512		1	5512		0.6449
5513		0.3597	5513		1	5513		0.6449
5514		0.6874	5514		0.3431	5514		0.6449
5515		0.6533	5515		0.2992	5515		0.6189
5516		0.3597	5516		0.2992	5516		0.4704
5517		0.4115	5517		0.3042	5517		0.5926
5518		0.5564	5518		0.3589	5518		0.6449
5519		0.6896	5519		0.3431	5519		0.6449
5520		0.6169	5520		0.3589	5520		0.6449
5521		0.6026	5521		0.3937	5521		0.6449
5522		0.6896	5522		0.3431	5522		0.5926
5523		0.6896	5523		0.3589	5523		0.6002
5524		0.71	5524		0.3937	5524		0.6449
5525		0.3749	5525	aberrant	0.1119	5525		0.5465
5526		0.3093	5526		0.3379	5526		0.5926
5527		0.6489	5527		0.3361	5527		0.4872
5528		0.5725	5528		0.3436	5528		0.5926
5529		0.4558	5529		0.3843	5529		0.5049
5530		0.3075	5530		0.3436	5530		0.5926
5531		0.71	5531		0.5343	5531		0.6189
5532		0.4703	5532		0.3436	5532		0.6189
5533		0.3597	5533		0.2109	5533		0.567

5534		0.5392	5534		0.5343	5534		0.6189
5535		0.3239	5535		0.5142	5535		0.5465

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5536		0.7225	5536		0.4127	5536		0.5424
5537		0.6503	5537		0.5274	5537		0.5411
5538		0.5538	5538		0.4802	5538		0.5926
5539		0.4558	5539		0.4006	5539		0.6449
5540		0.5751	5540		0.5154	5540		0.6449
5541		0.3597	5541		0.4911	5541		0.5067
5542		0.6896	5542		0.4382	5542		0.6449
5543		0.598	5543		0.4968	5543		0.6449
5544		0.3597	5544		0.5343	5544		0.5926
5545		0.5301	5545		0.5183	5545		0.6449
5546		0.2657	5546		0.4998	5546		0.6449
5547		0.3073	5547		0.4654	5547		0.5066
5548		0.71	5548		0.5343	5548		0.5899
5549		0.3597	5549		0.5153	5549		0.6449
5550		0.6896	5550		0.5014	5550		0.5444
5551		0.6502	5551		0.5142	5551		0.6449
5552		0.5092	5552		0.4167	5552		0.6449
5553		0.6483	5553		0.4445	5553		0.6002
5554		0.543	5554		0.4968	5554		0.6449
5555		0.71	5555		0.4816	5555		0.6449
5556		0.7225	5556		0.273	5556		0.5132
5557		0.6573	5557		0.5142	5557		0.4167
5558		0.42	5558		0.4655	5558		0.4516
5559		0.4093	5559		0.4975	5559		0.5465
5560		0.3597	5560		0.4628	5560		0.5494
5561		0.2554	5561		0.4816	5561		0.6449
5562		0.3597	5562		0.5269	5562		0.5597
5563		0.5728	5563		0.5016	5563		0.6449
5564		0.6896	5564		0.463	5564		0.5494
5565		0.5393	5565		0.4968	5565		0.6449
5566		0.3105	5566		0.5173	5566		0.5332
5567		0.4745	5567		0.4816	5567		0.5465
5568		0.5527	5568		0.4816	5568		0.5926
5569		0.4655	5569		0.4225	5569		0.4588
5570	aberrant	0.1377	5570		0.4779	5570		0.5546
5571		0.5855	5571		0.4331	5571		0.5926
5572		0.303	5572		0.4713	5572		0.6189
5573	aberrant	0.0048	5573		0.398	5573		0.6449
5574		0.6896	5574		0.4215	5574		0.6449

5575		0.6201	5575		0.3883	5575		0.39
5576		0.3262	5576		0.4691	5576		0.4774

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5577		0.5952	5577		0.4816	5577		0.6449
5578		0.5361	5578		0.4632	5578		0.6449
5579		0.3597	5579		0.4974	5579		0.5953
5580		0.71	5580		0.4816	5580		0.5768
5581		0.4267	5581		0.431	5581		0.5586
5582		0.6218	5582		0.5343	5582		0.6278
5583		0.3597	5583		0.4816	5583		0.6449
5584		0.3711	5584		0.4816	5584		0.5853
5585		0.5782	5585		0.4745	5585		0.6449
5586		0.71	5586		0.4688	5586		0.6449
5587		0.419	5587		0.4554	5587		0.5953
5588		0.4832	5588		0.4968	5588		0.6449
5589		0.4764	5589		0.3928	5589		0.6449
5590		0.6383	5590		0.4331	5590		0.6449
5591		0.5146	5591		0.4632	5591		0.5953
5592		0.6503	5592		0.4816	5592		0.6449
5593		0.6659	5593		0.4816	5593		0.6449
5594		0.3731	5594		0.5269	5594		0.5496
5595		0.7225	5595		0.5173	5595		0.4644
5596		0.6015	5596		0.4108	5596		0.6449
5597		0.6429	5597		0.273	5597		0.6449
5598		0.3597	5598		0.4703	5598		0.6449
5599		0.6896	5599		0.4725	5599		0.5167
5600		0.3597	5600		0.4502	5600		0.5529
5601		0.5766	5601		0.4968	5601		0.6161
5602		0.2653	5602		0.4672	5602		0.6449
5603		0.4968	5603		0.3737	5603		0.5953
5604		0.6896	5604		0.4968	5604		0.4994
5605		0.5606	5605		0.5343	5605		0.4049
5606		0.5871	5606		0.4726	5606		0.4994
5607		0.5426	5607		0.4816	5607		0.4994
5608		0.5146	5608		0.2884	5608		0.4994
5609		0.7225	5609		0.4726	5609		0.4994
5610		0.5535	5610		0.4983	5610		0.4994
5611		0.52	5611		0.4432	5611		0.4976
5612		0.4665	5612		0.5343	5612		0.6449
5613		0.7225	5613		0.5343	5613		0.4664
5614		0.5426	5614		0.3283	5614		0.4992
5615		0.5361	5615		0.271	5615		0.4992

5616		0.6002	5616		0.1664	5616		0.5464
5617		0.3597	5617		0.5158	5617		0.4793

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5618		0.5869	5618		0.3822	5618		0.5129
5619		0.5361	5619		0.5142	5619		0.5295
5620		0.5964	5620		0.3308	5620		0.5295
5621		0.71	5621		0.5158	5621		0.5373
5622		0.5307	5622		0.3922	5622		0.5634
5623		0.6896	5623		0.2582	5623		0.4987
5624		0.52	5624		0.2752	5624		0.4636
5625		0.5674	5625		0.5158	5625		0.5188
5626		0.5869	5626		0.4013	5626		0.5464
5627		0.4661	5627		0.5158	5627		0.6161
5628		0.5241	5628		0.4317	5628		0.4786
5629		0.6383	5629		0.4977	5629		0.4793
5630		0.7225	5630		0.3866	5630		0.5087
5631		0.5426	5631		0.5158	5631		0.5373
5632		0.5426	5632		0.2341	5632		0.6961
5633		0.6429	5633		0.2717	5633		0.5057
5634		0.3597	5634		0.419	5634		0.5295
5635		0.6383	5635		0.3618	5635		0.5019
5636		0.3731	5636		0.2887	5636		0.5099
5637		0.429	5637		0.5343	5637		0.5019
5638		0.3597	5638		0.4486	5638		0.5295
5639		0.7225	5639		0.295	5639		0.4813
5640		0.6244	5640		0.3907	5640		0.5295
5641		0.4671	5641		0.298	5641		0.5211
5642		0.432	5642	aberrant	0.1083	5642		0.5134
5643		0.6335	5643	aberrant	0.1083	5643		0.5016
5644		0.2653	5644	aberrant	0.1083	5644		0.72
5645		0.7225	5645	aberrant	0.1083	5645		0.4737
5646		0.71	5646	aberrant	0.1083	5646		0.5295
5647		0.6381	5647	aberrant	0.1083	5647		0.5295
5648		0.5606	5648	aberrant	0.1083	5648		0.5295
5649		0.5224	5649	aberrant	0.1083	5649		0.5295
5650		0.6056	5650		0.3197	5650		0.5373
5651		0.5677	5651		0.4576	5651		0.509
5652		0.522	5652		0.4043	5652		0.5295
5653	aberrant	0.2155	5653		0.5124	5653		0.5019
5654		0.4724	5654		0.441	5654		0.4559
5655		0.5426	5655		0.4632	5655		0.5095
5656		0.3181	5656		0.2202	5656		0.5327

5657		0.5264	5657		0.2305	5657		0.5396
5658	aberrant	0.2041	5658		0.2305	5658		0.5095

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5659		0.5864	5659		0.2146	5659		0.5396
5660		0.5872	5660	aberrant	0.1481	5660		0.5095
5661		0.5734	5661		0.2309	5661	aberrant	0.2444
5662		0.5426	5662	aberrant	0.1183	5662		0.4668
5663		0.4888	5663		0.2262	5663		0.5493
5664		0.524	5664		0.2251	5664		0.5558
5665		0.4039	5665		0.2042	5665		0.4668
5666		0.5199	5666		0.2127	5666		0.4953
5667		0.6183	5667		0.2313	5667		0.5294
5668		0.5148	5668		0.2028	5668		0.4678
5669		0.5994	5669		0.2177	5669		0.5139
5670		0.3597	5670		0.1804	5670		0.5342
5671		0.71	5671		0.1804	5671		0.5342
5672	aberrant	0.2041	5672		0.2262	5672		0.5041
5673		0.3731	5673		0.1633	5673		0.5554
5674		0.3731	5674		0.1675	5674		0.5352
5675		0.5434	5675		0.1806	5675		0.5701
5676		0.4702	5676		0.1829	5676		0.5493
5677		0.5636	5677		0.2258	5677		0.5621
5678		0.4732	5678		0.2814	5678		0.5706
5679		0.4731	5679	aberrant	0.1182	5679		0.5344
5680		0.6054	5680		0.2162	5680		0.5554
5681	aberrant	0.2015	5681		0.254	5681		0.5139
5682		0.4537	5682		0.2174	5682		0.4457
5683		0.4888	5683		0.1829	5683		0.5081
5684		0.5426	5684		0.1988	5684		0.4856
5685		0.3731	5685		0.1947	5685		0.5503
5686		0.5698	5686	aberrant	0.0849	5686		0.5161
5687		0.4724	5687		0.1947	5687		0.5701
5688		0.5698	5688		0.2481	5688		0.5554
5689		0.5459	5689		0.208	5689		0.5139
5690		0.4964	5690		0.2415	5690		0.5342
5691		0.5586	5691		0.2028	5691		0.5619
5692		0.3731	5692		0.2884	5692		0.5554
5693		0.569	5693	aberrant	0.1449	5693		0.4632
5694		0.5605	5694	aberrant	0.143	5694		0.4632
5695		0.4731	5695	aberrant	0.1384	5695		0.5503
5696		0.5864	5696		0.1714	5696		0.519
5697		0.5426	5697		0.1863	5697		0.5344

5698		0.524	5698		0.1714	5698		0.4786
5699		0.5136	5699		0.1714	5699		0.5139

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5700		0.5136	5700		0.1714	5700		0.5554
5701		0.5308	5701		0.1714	5701		0.5364
5702		0.3597	5702	aberrant	0.1407	5702		0.476
5703		0.5511	5703		0.1714	5703		0.4856
5704		0.3731	5704		0.1714	5704		0.5425
5705		0.5751	5705		0.1714	5705		0.5554
5706		0.3597	5706		0.1714	5706		0.3502
5707		0.4731	5707		0.1714	5707	aberrant	0.2766
5708		0.5254	5708		0.1714	5708		0.4109
5709		0.3731	5709		0.1714	5709		0.3502
5710		0.3597	5710		0.1714	5710		0.4467
5711		0.466	5711		0.1714	5711		0.3216
5712	aberrant	0.2277	5712		0.1714	5712		0.343
5713		0.446	5713		0.1714	5713	aberrant	0.2418
5714		0.3731	5714		0.1714	5714		0.3906
5715		0.2965	5715		0.1714	5715		0.3789
5716		0.5994	5716		0.1714	5716		0.3502
5717		0.5249	5717		0.2013	5717		0.3502
5718		0.5082	5718		0.1714	5718		0.3569
5719		0.5734	5719		0.1714	5719		0.3233
5720	aberrant	0.2028	5720		0.1714	5720		0.3366
5721		0.3541	5721	aberrant	0.1374	5721	aberrant	0.309
5722		0.3597	5722		0.1765	5722		0.374
5723		0.5127	5723		0.1677	5723		0.3472
5724		0.5994	5724		0.1621	5724		0.3265
5725		0.3731	5725		0.1573	5725		0.4402
5726		0.5994	5726		0.1559	5726	aberrant	0.2345
5727		0.4721	5727		0.1689	5727		0.3697
5728		0.5597	5728		0.167	5728		0.3636
5729		0.5161	5729		0.173	5729		0.412
5730		0.3597	5730		0.1857	5730		0.5326
5731		0.3597	5731	aberrant	0.1083	5731		0.3794
5732		0.3597	5732	aberrant	0.1083	5732		0.3229
5733		0.5349	5733	aberrant	0.1083	5733		0.4039
5734		0.6896	5734	aberrant	0.1083	5734		0.5418
5735		0.3661	5735	aberrant	0.1083	5735		0.3315
5736	aberrant	0.2411	5736	aberrant	0.1083	5736	aberrant	0.1168
5737		0.6874	5737	aberrant	0.1083	5737		0.3315
5738		0.248	5738	aberrant	0.1083	5738		0.3453

5739	aberrant	0.1938	5739	aberrant	0.1083	5739		0.4402
5740		0.5174	5740	aberrant	0.1083	5740	aberrant	0.2998

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5741		0.5527	5741	aberrant	0.1388	5741		0.3782
5742		0.5027	5742	aberrant	0.1388	5742		0.4703
5743		0.6874	5743	aberrant	0.1388	5743		0.3658
5744		0.4656	5744		0.2502	5744		0.3454
5745		0.5228	5745	aberrant	0.1185	5745		0.3771
5746	aberrant	0.2037	5746	aberrant	0.1388	5746		0.3321
5747		0.4045	5747	aberrant	0.1388	5747	aberrant	0.2281
5748		0.5174	5748		0.2359	5748		0.3621
5749		0.4602	5749	aberrant	0.1475	5749		0.3353
5750		0.6488	5750		0.2662	5750		0.3621
5751		0.5568	5751		0.2411	5751		0.3315
5752		0.4401	5752	aberrant	0.1104	5752		0.3315
5753		0.6488	5753	aberrant	0.1104	5753	aberrant	0.2916
5754		0.5306	5754	aberrant	0.1104	5754		0.4218
5755		0.4199	5755	aberrant	0.1104	5755		0.313
5756		0.4997	5756	aberrant	0.0812	5756		0.4091
5757		0.3921	5757	aberrant	0.1104	5757	aberrant	0.2794
5758		0.5173	5758	aberrant	0.1518	5758		0.3753
5759		0.4688	5759		0.1576	5759		0.3782
5760		0.536	5760	aberrant	0.1104	5760		0.3959
5761		0.5284	5761	aberrant	0.1104	5761		0.3265
5762		0.2851	5762	aberrant	0.1104	5762		0.3626
5763		0.5971	5763		0.3283	5763		0.385
5764	aberrant	0.2411	5764		0.3283	5764		0.3782
5765		0.6348	5765		0.3283	5765		0.4413
5766		0.4205	5766	aberrant	0.1121	5766		0.3782
5767		0.2851	5767	aberrant	0.1195	5767		0.3635
5768		0.3597	5768	aberrant	0.1121	5768		0.3637
5769		0.4515	5769	aberrant	0.1121	5769		0.3782
5770		0.5173	5770	aberrant	0.1121	5770	aberrant	0.1622
5771		0.2851	5771	aberrant	0.1121	5771		0.3895
5772	aberrant	0.2411	5772	aberrant	0.1121	5772	aberrant	0.3031
5773	aberrant	0.2411	5773	aberrant	0.1121	5773		0.4366
5774	aberrant	0.2411	5774	aberrant	0.1121	5774		0.3229
5775	aberrant	0.2411	5775	aberrant	0.1121	5775	aberrant	0.2922
5776		0.6514	5776		0.3417	5776		0.3226
5777	aberrant	0.2075	5777	aberrant	0.1429	5777		0.4417
5778	aberrant	0.2411	5778	aberrant	0.1193	5778		0.4417
5779		0.3597	5779	aberrant	0.0669	5779		0.4417

5780		0.5507	5780	aberrant	0.1359	5780		0.4468
5781		0.4665	5781	aberrant	0.1503	5781		0.4296

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5782		0.4464	5782	aberrant	0.0859	5782		0.5192
5783		0.6488	5783		0.1769	5783		0.425
5784		0.5179	5784	aberrant	0.104	5784		0.4417
5785		0.3883	5785	aberrant	0.1053	5785		0.4873
5786		0.5724	5786	aberrant	0.1359	5786		0.4417
5787	aberrant	0.216	5787	aberrant	0.098	5787		0.3324
5788		0.585	5788	aberrant	0.1359	5788		0.4873
5789	aberrant	0.2411	5789		0.1535	5789		0.3324
5790		0.3226	5790	aberrant	0.0757	5790		0.4873
5791		0.2565	5791	aberrant	0.1339	5791		0.4873
5792		0.5047	5792	aberrant	0.1516	5792		0.4417
5793		0.4692	5793	aberrant	0.0943	5793		0.4417
5794		0.6	5794	aberrant	0.0747	5794		0.4873
5795		0.5006	5795	aberrant	0.1105	5795		0.4417
5796		0.4665	5796	aberrant	0.1516	5796		0.3324
5797		0.3597	5797	aberrant	0.1279	5797		0.4417
5798		0.2991	5798	aberrant	0.1359	5798		0.4417
5799		0.5377	5799	aberrant	0.1516	5799		0.4417
5800		0.6071	5800	aberrant	0.1279	5800		0.4873
5801		0.5865	5801	aberrant	0.1153	5801		0.395
5802	aberrant	0.2075	5802	aberrant	0.0967	5802		0.3184
5803		0.4402	5803	aberrant	0.141	5803		0.4159
5804		0.4688	5804	aberrant	0.1467	5804	aberrant	0.3009
5805		0.62	5805	aberrant	0.1279	5805		0.3184
5806		0.4665	5806	aberrant	0.0986	5806	aberrant	0.2331
5807		0.4371	5807	aberrant	0.1359	5807		0.4663
5808		0.6488	5808	aberrant	0.1153	5808		0.3825
5809	aberrant	0.2158	5809	aberrant	0.0967	5809		0.5295
5810		0.3313	5810	aberrant	0.1359	5810		0.5295
5811		0.6488	5811	aberrant	0.1359	5811		0.5295
5812		0.3597	5812		0.1893	5812		0.4827
5813	aberrant	0.2411	5813		0.1768	5813		0.5295
5814		0.3597	5814		0.1899	5814		0.4992
5815		0.5788	5815		0.1768	5815		0.5295
5816		0.4717	5816		0.1768	5816		0.5295
5817		0.6571	5817		0.2154	5817		0.4246
5818		0.3597	5818		0.2367	5818		0.4233
5819	aberrant	0.216	5819		0.1869	5819		0.4513
5820		0.5047	5820		0.2289	5820		0.421

5821		0.6429	5821		0.1772	5821		0.4764
5822		0.2527	5822		0.2221	5822		0.5192

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5823		0.5764	5823		0.1768	5823		0.4196
5824		0.5174	5824		0.1988	5824		0.3224
5825		0.7063	5825	aberrant	0.1406	5825		0.4356
5826		0.4703	5826		0.1594	5826		0.4568
5827		0.5372	5827		0.324	5827		0.4991
5828		0.5958	5828		0.2051	5828		0.4535
5829		0.7225	5829		0.2051	5829		0.4196
5830		0.5881	5830		0.1767	5830		0.4953
5831		0.5932	5831		0.2426	5831		0.3572
5832		0.4431	5832		0.2885	5832		0.3534
5833		0.7225	5833		0.2498	5833		0.4047
5834		0.6335	5834		0.2247	5834		0.4535
5835		0.5133	5835		0.2247	5835		0.473
5836		0.3597	5836		0.2247	5836		0.4453
5837		0.4868	5837		0.2498	5837		0.4453
5838		0.6549	5838		0.2498	5838		0.4577
5839		0.6429	5839		0.2134	5839		0.4789
5840		0.4624	5840		0.5343	5840		0.5084
5841		0.6104	5841		0.4874	5841		0.3923
5842		0.5302	5842		0.4832	5842		0.5476
5843		0.5724	5843		0.5343	5843		0.4518
5844		0.4353	5844		0.5343	5844		0.4686
5845		0.4657	5845		0.5343	5845		0.4246
5846		0.3597	5846		0.4954	5846		0.5396
5847		0.5142	5847		0.5259	5847		0.5396
5848		0.3077	5848		0.5343	5848		0.5396
5849		0.4768	5849		0.5259	5849		0.5396
5850		0.3552	5850		0.4811	5850		0.5396
5851		0.5302	5851		0.5269	5851		0.5396
5852		0.644	5852		0.4274	5852		0.5396
5853		0.5626	5853		0.4356	5853		0.5396
5854		0.5302	5854		0.5343	5854		0.5396
5855		0.6071	5855		0.5064	5855		0.5396
5856		0.6429	5856		0.4688	5856		0.5396
5857		0.5527	5857		0.4513	5857		0.5
5858		0.5535	5858		0.5343	5858		0.5393
5859		0.6026	5859		0.4954	5859		0.5396
5860		0.5626	5860		0.5343	5860		0.5396
5861		0.2834	5861		0.4954	5861		0.5095

5862		0.7297	5862		0.5343	5862		0.5396
5863		0.5398	5863		0.5343	5863		0.5396

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5864		0.4423	5864		0.4627	5864		0.5396
5865		0.6958	5865		0.4954	5865		0.5393
5866		0.6896	5866		0.4828	5866		0.5393
5867		0.5144	5867		0.5144	5867		0.5396
5868		0.3552	5868		0.5343	5868		0.5106
5869		0.4414	5869		0.5343	5869		0.4485
5870		0.4234	5870		0.5343	5870		0.5396
5871		0.5801	5871		0.5343	5871		0.5396
5872		0.4305	5872		0.5182	5872		0.5396
5873		0.4131	5873		0.3283	5873		0.5396
5874		0.4657	5874		0.3283	5874		0.4557
5875		0.5932	5875		0.3283	5875		0.4485
5876		0.6896	5876		0.3283	5876		0.5396
5877		0.6896	5877		0.3283	5877		0.5396
5878		0.5932	5878		0.3283	5878		0.5556
5879		0.5698	5879		0.3283	5879		0.5396
5880		0.7063	5880		0.3283	5880		0.5396
5881		0.4703	5881		0.3283	5881		0.4565
5882		0.4624	5882		0.3283	5882		0.4185
5883		0.5016	5883		0.3283	5883		0.5414
5884		0.6442	5884		0.3283	5884		0.4014
5885		0.6896	5885		0.3283	5885		0.5196
5886		0.7225	5886		0.3283	5886		0.45
5887		0.5401	5887		0.3283	5887		0.3927
5888		0.3597	5888		0.2235	5888		0.4282
5889		0.4275	5889		0.3283	5889		0.5396
5890		0.4891	5890		0.3283	5890		0.5196
5891		0.5033	5891		0.3283	5891		0.4505
5892		0.4423	5892		0.3072	5892		0.4565
5893		0.4624	5893		0.3283	5893		0.3927
5894		0.6549	5894		0.3283	5894		0.3709
5895		0.5932	5895		0.3283	5895		0.4082
5896		0.5144	5896		0.3283	5896		0.4185
5897		0.6334	5897		0.3283	5897		0.5196
5898		0.6338	5898		0.3283	5898		0.5196
5899		0.7225	5899		0.3283	5899		0.5414
5900		0.4624	5900		0.3283	5900		0.5196
5901		0.516	5901		0.5343	5901		0.4445
5902		0.407	5902		0.4116	5902		0.4014

5903		0.3933	5903		0.4113	5903		0.3661
5904		0.4497	5904		0.5343	5904		0.4937

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5905		0.7225	5905		0.3838	5905		0.4917
5906		0.6442	5906		0.4113	5906		0.3879
5907	aberrant	0.2375	5907		0.5343	5907		0.3912
5908		0.3597	5908		0.5343	5908		0.421
5909		0.5698	5909		0.5035	5909		0.421
5910		0.5131	5910		0.3283	5910		0.421
5911		0.7225	5911		0.3283	5911		0.421
5912		0.5657	5912		0.3283	5912		0.421
5913		0.5751	5913		0.3283	5913		0.421
5914		0.7225	5914		0.3283	5914		0.4818
5915		0.6183	5915		0.3521	5915		0.421
5916		0.4389	5916		0.3283	5916		0.421
5917		0.4054	5917		0.3283	5917		0.421
5918		0.669	5918		0.3283	5918		0.421
5919		0.6626	5919		0.3283	5919		0.421
5920		0.6334	5920		0.3283	5920		0.421
5921		0.6442	5921		0.3283	5921		0.421
5922		0.4441	5922		0.3283	5922		0.421
5923		0.5011	5923		0.3283	5923		0.421
5924		0.5144	5924		0.3283	5924		0.421
5925		0.6226	5925		0.3283	5925		0.421
5926		0.7063	5926		0.3283	5926		0.3507
5927		0.4703	5927		0.3283	5927		0.4709
5928		0.653	5928		0.3283	5928		0.3507
5929		0.3302	5929		0.3283	5929		0.5133
5930		0.5932	5930		0.3283	5930		0.4995
5931		0.3007	5931		0.3283	5931		0.496
5932		0.4576	5932		0.3283	5932		0.5295
5933		0.5543	5933		0.3283	5933		0.5166
5934		0.6896	5934		0.3283	5934		0.4165
5935		0.71	5935		0.3283	5935		0.5396
5936		0.71	5936		0.3283	5936		0.5396
5937		0.6896	5937		0.3283	5937		0.5396
5938		0.6435	5938		0.3283	5938		0.4161
5939		0.5546	5939		0.3025	5939		0.4931
5940		0.6896	5940		0.3283	5940		0.5318
5941		0.71	5941		0.3283	5941		0.5153
5942		0.5543	5942		0.3283	5942		0.5095
5943		0.71	5943		0.3283	5943		0.5367

5944		0.71	5944		0.3283	5944		0.5396
5945		0.6383	5945		0.3283	5945	aberrant	0.2081

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5946		0.6896	5946		0.3283	5946		0.5367
5947		0.6896	5947		0.3444	5947		0.4518
5948		0.71	5948		0.3283	5948		0.5396
5949		0.71	5949		0.3283	5949		0.5396
5950		0.5778	5950		0.3124	5950		0.4932
5951		0.5907	5951		0.3362	5951		0.4307
5952		0.6896	5952		0.3362	5952		0.3614
5953		0.5226	5953		0.3362	5953		0.5396
5954		0.71	5954		0.3124	5954	aberrant	0.2845
5955		0.71	5955		0.3362	5955		0.3507
5956		0.71	5956		0.3124	5956		0.3507
5957		0.6896	5957		0.3362	5957		0.5462
5958	aberrant	-0.0198	5958		0.3124	5958		0.5206
5959		0.6071	5959		0.2825	5959		0.4408
5960		0.6041	5960		0.3283	5960		0.4472
5961		0.6277	5961		0.3283	5961		0.5153
5962	aberrant	0.0259	5962		0.3283	5962		0.5125
5963		0.5189	5963		0.3283	5963		0.5396
5964		0.6446	5964		0.3283	5964		0.4916
5965		0.3147	5965		0.3283	5965	aberrant	0.0197
5966		0.3573	5966		0.3283	5966	aberrant	-0.025
5967		0.3395	5967		0.3283	5967		0.5157
5968		0.3597	5968		0.3283	5968		0.4541
5969		0.2738	5969		0.3283	5969		0.478
5970		0.3597	5970		0.3467	5970		0.5396
5971		0.6049	5971		0.3425	5971		0.5396
5972		0.2729	5972		0.3283	5972		0.5396
5973	aberrant	0.1983	5973		0.3283	5973		0.364
5974		0.3395	5974		0.3283	5974		0.4889
5975		0.3597	5975		0.3283	5975		0.3446
5976		0.4939	5976		0.3283	5976		0.4076
5977		0.3573	5977		0.3283	5977		0.4076
5978		0.3573	5978		0.3283	5978		0.3244
5979		0.6446	5979		0.3283	5979		0.4076
5980		0.3573	5980		0.3054	5980		0.3438
5981		0.3388	5981		0.3283	5981		0.4076
5982		0.4935	5982		0.3283	5982		0.4076
5983		0.484	5983		0.3283	5983		0.4076
5984		0.3573	5984		0.3448	5984		0.4076

5985		0.3377	5985		0.3283	5985		0.4076
5986		0.6434	5986		0.3283	5986		0.4076

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
5987		0.71	5987		0.3283	5987		0.4076
5988		0.5488	5988		0.3283	5988		0.4076
5989		0.6329	5989		0.3283	5989		0.3544
5990		0.71	5990		0.3283	5990		0.4076
5991		0.6435	5991		0.3169	5991		0.4077
5992		0.6399	5992		0.3283	5992		0.3846
5993		0.3919	5993		0.3283	5993		0.3946
5994		0.6198	5994		0.3283	5994		0.4076
5995		0.3919	5995		0.3283	5995		0.4076
5996		0.5784	5996		0.3283	5996		0.4076
5997		0.5784	5997		0.1559	5997		0.4076
5998		0.3059	5998		0.1559	5998		0.4076
5999		0.4422	5999		0.3996	5999		0.3694
6000		0.2992	6000		0.3586	6000		0.3848
6001		0.3919	6001		0.3586	6001		0.4076
6002		0.2468	6002		0.3436	6002		0.4076
6003		0.6054	6003		0.3122	6003		0.5619
6004		0.6896	6004		0.3376	6004		0.5619
6005		0.6061	6005		0.3632	6005		0.5619
6006		0.6429	6006		0.3586	6006		0.5619
6007		0.6533	6007		0.2925	6007		0.5619
6008		0.5798	6008		0.3316	6008		0.5619
6009		0.6896	6009		0.3996	6009		0.5619
6010		0.6896	6010		0.324	6010		0.5619
6011		0.6681	6011		0.3122	6011		0.5542
6012		0.5698	6012		0.3212	6012		0.5658
6013		0.5501	6013		0.3586	6013		0.5619
6014		0.5351	6014		0.3586	6014		0.5543
6015		0.6896	6015		0.3149	6015		0.537
6016		0.653	6016		0.3398	6016		0.5619
6017		0.6502	6017		0.3149	6017		0.5619
6018		0.6502	6018		0.3149	6018		0.5487
6019		0.6502	6019		0.3459	6019		0.5396
6020		0.6502	6020		0.3398	6020		0.3805
6021		0.6502	6021		0.3996	6021		0.5038
6022		0.4836	6022		0.3586	6022		0.5349
6023		0.6361	6023		0.3376	6023		0.4857
6024		0.6361	6024		0.3777	6024		0.5396
6025		0.6361	6025		0.1567	6025		0.42

6026		0.6896	6026		0.1681	6026		0.4853
6027		0.6896	6027		0.1567	6027		0.5866

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6028		0.6502	6028	aberrant	0.1078	6028		0.5396
6029		0.6142	6029	aberrant	0.0967	6029		0.4936
6030		0.4294	6030		0.1567	6030		0.4878
6031		0.2623	6031	aberrant	0.0757	6031		0.5396
6032		0.4294	6032		0.1567	6032		0.3595
6033		0.4705	6033		0.4993	6033		0.4691
6034		0.5464	6034		0.4993	6034		0.5396
6035		0.4893	6035		0.3872	6035		0.5201
6036		0.55	6036		0.4778	6036		0.5396
6037		0.6007	6037		0.4993	6037		0.4691
6038		0.5297	6038		0.4092	6038		0.4123
6039		0.2982	6039		0.4485	6039		0.5106
6040		0.2982	6040		0.2832	6040		0.3535
6041		0.2957	6041		0.2823	6041		0.3153
6042		0.2745	6042		0.3064	6042		0.5396
6043		0.2745	6043		0.2615	6043		0.4002
6044		0.2802	6044		0.3062	6044		0.4399
6045		0.2957	6045		0.2828	6045		0.496
6046		0.2852	6046		0.324	6046		0.5204
6047		0.4661	6047		0.3127	6047		0.4707
6048		0.2757	6048		0.3064	6048		0.5187
6049		0.2982	6049		0.4941	6049		0.4149
6050		0.3147	6050		0.4941	6050		0.3675
6051		0.2982	6051		0.4941	6051		0.448
6052		0.2737	6052		0.4941	6052		0.4235
6053	aberrant	0.066	6053		0.4941	6053		0.4871
6054		0.7225	6054		0.4941	6054		0.4595
6055		0.5537	6055		0.4941	6055		0.39
6056		0.6015	6056		0.4941	6056		0.4235
6057		0.5932	6057		0.4941	6057		0.3512
6058		0.6008	6058		0.4941	6058		0.448
6059		0.6343	6059		0.2382	6059		0.4235
6060		0.6134	6060		0.2585	6060		0.448
6061		0.6896	6061		0.2828	6061	aberrant	0.2679
6062		0.5643	6062		0.2828	6062	aberrant	0.3065
6063		0.599	6063		0.2828	6063		0.3672
6064		0.5617	6064		0.4941	6064		0.448
6065		0.557	6065		0.4941	6065		0.4277
6066		0.439	6066		0.3283	6066		0.3322

6067		0.5353	6067		0.3283	6067		0.3974
6068		0.5395	6068		0.3283	6068		0.3668

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6069		0.2998	6069		0.3283	6069	aberrant	0.1928
6070		0.5361	6070		0.3283	6070		0.448
6071		0.574	6071		0.3283	6071		0.4278
6072		0.6418	6072		0.3283	6072		0.397
6073		0.6896	6073		0.3283	6073	aberrant	0.0951
6074		0.5959	6074		0.3283	6074		0.3943
6075		0.6505	6075		0.3283	6075		0.444
6076		0.6896	6076		0.3283	6076		0.3773
6077		0.4974	6077		0.3283	6077		0.4217
6078		0.2675	6078		0.2469	6078		0.4386
6079		0.4394	6079		0.3283	6079		0.4665
6080		0.6023	6080		0.3283	6080		0.3774
6081		0.5687	6081		0.3283	6081		0.3397
6082		0.5994	6082		0.3283	6082		0.4137
6083		0.5825	6083		0.2719	6083		0.4054
6084		0.6018	6084		0.3283	6084		0.3993
6085		0.5147	6085		0.2966	6085		0.4358
6086		0.6361	6086		0.3283	6086		0.4881
6087		0.3865	6087		0.3283	6087		0.5107
6088		0.4663	6088		0.3283	6088		0.5396
6089		0.429	6089		0.3283	6089		0.5396
6090	aberrant	0.1012	6090		0.3283	6090		0.5396
6091		0.6896	6091		0.3283	6091		0.5396
6092		0.5782	6092		0.3283	6092		0.5396
6093		0.572	6093		0.3283	6093		0.5396
6094		0.6896	6094		0.3296	6094		0.5396
6095		0.4672	6095		0.3283	6095		0.5396
6096		0.4586	6096		0.3283	6096		0.4893
6097		0.5302	6097		0.3283	6097		0.5396
6098		0.5332	6098		0.3003	6098		0.5396
6099		0.5717	6099		0.3283	6099		0.5396
6100		0.3574	6100		0.2983	6100		0.5396
6101		0.5717	6101		0.3343	6101		0.5396
6102		0.3284	6102		0.2224	6102		0.5396
6103		0.4929	6103		0.3219	6103		0.4417
6104		0.5252	6104		0.3219	6104		0.5396
6105		0.5562	6105		0.3482	6105		0.5396
6106		0.5252	6106		0.2224	6106		0.4896
6107	aberrant	0.121	6107		0.2224	6107		0.5396

6108		0.6529	6108		0.198	6108		0.5396
6109		0.71	6109		0.1897	6109		0.5396

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6110		0.6529	6110		0.3462	6110		0.5348
6111		0.6529	6111		0.3368	6111		0.5396
6112		0.71	6112	aberrant	0.1347	6112		0.5396
6113		0.5228	6113		0.3139	6113		0.5396
6114		0.71	6114		0.3298	6114		0.5396
6115		0.6448	6115		0.3298	6115		0.5396
6116		0.5472	6116		0.3439	6116		0.5396
6117		0.6529	6117		0.3298	6117		0.4896
6118		0.6529	6118		0.3298	6118		0.5396
6119		0.71	6119		0.3731	6119		0.4881
6120		0.6329	6120		0.3298	6120		0.4881
6121		0.71	6121		0.3298	6121		0.5396
6122		0.5036	6122		0.3948	6122		0.5396
6123		0.71	6123		0.3386	6123		0.5396
6124		0.71	6124		0.309	6124		0.5396
6125		0.6138	6125		0.337	6125		0.4001
6126		0.6448	6126		0.293	6126		0.4896
6127		0.71	6127		0.3298	6127		0.5396
6128		0.5175	6128		0.3195	6128		0.5396
6129		0.71	6129		0.3058	6129		0.4896
6130		0.71	6130		0.3298	6130	aberrant	0.2586
6131		0.71	6131		0.3298	6131		0.4873
6132		0.71	6132		0.3298	6132		0.44
6133		0.71	6133		0.3298	6133		0.4863
6134		0.71	6134		0.2941	6134		0.5374
6135		0.71	6135		0.3399	6135		0.3924
6136		0.4786	6136		0.3298	6136		0.4873
6137		0.71	6137		0.3298	6137		0.356
6138		0.71	6138		0.2963	6138		0.4873
6139		0.71	6139		0.3298	6139		0.4417
6140		0.6352	6140	aberrant	0.1479	6140		0.4417
6141		0.71	6141		0.3812	6141		0.4873
6142		0.6529	6142		0.3298	6142		0.4873
6143		0.5901	6143		0.3298	6143		0.4318
6144		0.5857	6144		0.3053	6144		0.4863
6145		0.6529	6145		0.3053	6145		0.4873
6146		0.6529	6146		0.2748	6146		0.4417
6147		0.71	6147		0.2527	6147		0.4873
6148		0.71	6148		0.2673	6148		0.5156

6149		0.71	6149		0.3053	6149		0.4873
6150		0.71	6150		0.2415	6150		0.4873

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6151		0.5986	6151		0.291	6151		0.5052
6152		0.6031	6152		0.3309	6152		0.4417
6153		0.71	6153		0.3053	6153		0.4454
6154		0.71	6154		0.2782	6154		0.4417
6155		0.6389	6155	aberrant	0.1421	6155		0.4735
6156		0.5102	6156		0.2325	6156		0.5396
6157		0.6388	6157		0.2619	6157		0.4952
6158		0.71	6158		0.2932	6158		0.4952
6159		0.6388	6159		0.2808	6159		0.5396
6160		0.5417	6160		0.3053	6160		0.4698
6161		0.6529	6161	aberrant	0.0037	6161		0.4857
6162		0.5417	6162	aberrant	-0.0149	6162		0.4949
6163		0.5017	6163	aberrant	-0.1063	6163		0.5396
6164		0.5017	6164	aberrant	-0.1254	6164		0.5396
6165		0.6181	6165	aberrant	-0.1944	6165		0.4857
6166		0.567	6166	aberrant	-0.104	6166		0.4952
6167		0.642	6167		0.1657	6167		0.5396
6168		0.642	6168	aberrant	0.0259	6168		0.4952
6169		0.5647	6169	aberrant	-0.1432	6169		0.4949
6170		0.642	6170	aberrant	-0.1198	6170		0.4677
6171		0.5962	6171	aberrant	-0.047	6171		0.5396
6172		0.5995	6172	aberrant	0.0222	6172		0.5106
6173		0.5995	6173	aberrant	0.1435	6173		0.5396
6174		0.5833	6174	aberrant	0.0042	6174		0.5396
6175		0.5701	6175	aberrant	-0.047	6175		0.5396
6176		0.5321	6176	aberrant	-0.0507	6176		0.5396
6177		0.5321	6177	aberrant	-0.047	6177		0.5396
6178		0.5802	6178	aberrant	0.0616	6178		0.5396
6179		0.642	6179		0.1651	6179		0.5396
6180		0.642	6180	aberrant	-0.012	6180		0.5107
6181		0.574	6181	aberrant	0.0965	6181		0.5396
6182		0.5633	6182	aberrant	0.0426	6182		0.5396
6183		0.5955	6183		0.2273	6183		0.5396
6184		0.6301	6184		0.3149	6184		0.5396
6185		0.642	6185		0.3438	6185		0.5396
6186		0.606	6186	aberrant	-0.1175	6186		0.5396
6187		0.6057	6187	aberrant	0.0421	6187		0.4447
6188		0.6178	6188		0.4506	6188		0.5396
6189		0.5049	6189		0.4124	6189		0.5396

6190	aberrant	-0.0072	6190	aberrant	0.1422	6190		0.5396
6191	aberrant	-0.0072	6191	aberrant	0.0864	6191		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6192		0.71	6192	aberrant	0.119	6192		0.6449
6193	aberrant	-0.0072	6193	aberrant	0.0541	6193		0.5396
6194	aberrant	0.1613	6194	aberrant	0.119	6194		0.6449
6195	aberrant	-0.0072	6195	aberrant	0.1431	6195		0.6449
6196	aberrant	-0.0072	6196		0.1526	6196		0.6449
6197		0.71	6197	aberrant	0.1422	6197		0.6449
6198	aberrant	0.1613	6198		0.2481	6198		0.4459
6199	aberrant	-0.0072	6199	aberrant	0.019	6199		0.6455
6200	aberrant	-0.0072	6200	aberrant	-0.024	6200		0.4409
6201		0.71	6201		0.2126	6201		0.4687
6202	aberrant	-0.0072	6202	aberrant	0.1178	6202		0.4409
6203		0.5617	6203		0.1846	6203		0.6449
6204		0.6447	6204	aberrant	0.0752	6204		0.4137
6205		0.71	6205		0.2108	6205		0.4137
6206		0.71	6206		0.2166	6206		0.5437
6207		0.71	6207		0.2166	6207		0.3966
6208		0.6015	6208		0.2166	6208		0.4137
6209		0.71	6209		0.2475	6209		0.3732
6210		0.71	6210		0.2166	6210		0.443
6211		0.71	6211		0.1784	6211		0.3617
6212		0.6435	6212		0.1945	6212		0.3812
6213		0.71	6213		0.2166	6213		0.6449
6214		0.6545	6214		0.2166	6214		0.345
6215		0.6896	6215	aberrant	0.1415	6215		0.4044
6216		0.5535	6216	aberrant	0.0408	6216		0.4137
6217		0.6896	6217	aberrant	-0.0409	6217		0.3374
6218		0.5546	6218	aberrant	-0.0518	6218	aberrant	0.2756
6219		0.6025	6219	aberrant	0.1258	6219		0.3767
6220		0.6896	6220	aberrant	-0.0428	6220		0.3223
6221		0.6406	6221	aberrant	-0.076	6221		0.3385
6222		0.6123	6222	aberrant	0.073	6222		0.4137
6223		0.649	6223	aberrant	-0.0718	6223		0.4137
6224		0.6016	6224	aberrant	0.0329	6224		0.5575
6225		0.649	6225		0.4657	6225		0.4409
6226		0.6406	6226	aberrant	0.0448	6226		0.3374
6227		0.581	6227	aberrant	-0.0123	6227		0.4137
6228		0.6896	6228		0.4657	6228		0.4137
6229		0.5644	6229	aberrant	-0.0774	6229		0.328
6230		0.6896	6230		0.3053	6230		0.364

6231		0.649	6231		0.3053	6231		0.4137
6232		0.6896	6232		0.3053	6232		0.4137

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6233		0.6896	6233		0.3053	6233		0.4137
6234		0.653	6234		0.3053	6234		0.4137
6235		0.6896	6235		0.2715	6235		0.4324
6236		0.6896	6236		0.3053	6236		0.4137
6237		0.6896	6237		0.179	6237		0.392
6238		0.6456	6238		0.3053	6238		0.362
6239		0.6896	6239		0.2334	6239		0.3966
6240		0.6896	6240		0.3053	6240	aberrant	0.2883
6241		0.6896	6241		0.179	6241		0.4669
6242		0.6474	6242		0.3053	6242		0.4137
6243		0.596	6243		0.3053	6243		0.4137
6244		0.6896	6244		0.3053	6244		0.3886
6245	aberrant	0.1359	6245		0.3053	6245		0.4486
6246		0.6896	6246		0.3053	6246		0.4409
6247		0.5227	6247		0.3053	6247		0.4137
6248		0.6078	6248		0.3053	6248		0.465
6249		0.3869	6249		0.3053	6249		0.4137
6250	aberrant	0.2424	6250		0.5052	6250		0.3993
6251	aberrant	0.2424	6251		0.5343	6251	aberrant	0.2734
6252		0.5357	6252		0.5123	6252		0.355
6253		0.71	6253		0.4734	6253		0.3828
6254		0.71	6254		0.5343	6254		0.4137
6255		0.5834	6255		0.5343	6255		0.5828
6256		0.4062	6256		0.5343	6256		0.4137
6257		0.3611	6257		0.1741	6257		0.326
6258		0.4062	6258	aberrant	0.0669	6258		0.4137
6259		0.4062	6259	aberrant	0.13	6259		0.4137
6260		0.5932	6260		0.1567	6260		0.765
6261	aberrant	0.1613	6261		0.2475	6261		0.4137
6262		0.5931	6262		0.2475	6262		0.4137
6263		0.7225	6263	aberrant	0.1125	6263		0.4382
6264		0.6526	6264		0.5343	6264		0.3583
6265		0.6315	6265		0.5343	6265		0.4193
6266		0.6057	6266		0.3283	6266		0.4137
6267		0.6361	6267		0.3283	6267		0.3498
6268		0.6529	6268		0.1559	6268		0.6449
6269		0.6896	6269		0.3398	6269		0.443
6270		0.621	6270		0.2803	6270		0.4137
6271		0.71	6271		0.1567	6271		0.6449

6272		0.5708	6272		0.3064	6272		0.3784
6273		0.71	6273		0.2828	6273		0.4137

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6274		0.6383	6274		0.5128	6274		0.5953
6275		0.6896	6275		0.3331	6275	aberrant	0.2883
6276		0.6336	6276		0.3196	6276	aberrant	0.2903
6277		0.6896	6277		0.2932	6277		0.4137
6278		0.5887	6278		0.4269	6278		0.4024
6279		0.6626	6279		0.402	6279		0.3675
6280		0.7225	6280		0.2108	6280	aberrant	0.286
6281		0.6304	6281		0.3053	6281		0.404
6282		0.6465	6282		0.5343	6282		0.3461
6283		0.6896	6283	aberrant	0.1317	6283		0.3484
6284		0.621	6284		0.3906	6284	aberrant	0.2892
6285		0.71	6285		0.3713	6285	aberrant	0.2346
6286		0.6456	6286		0.453	6286		0.4049
6287		0.553	6287		0.4456	6287		0.3764
6288		0.5936	6288		0.3385	6288		0.3433
6289		0.5717	6289		0.2752	6289		0.404
6290		0.6292	6290		0.4071	6290		0.3931
6291		0.5435	6291	aberrant	0.0042	6291		0.4312
6292		0.5996	6292		0.468	6292		0.3828
6293		0.5477	6293		0.3066	6293		0.3615
6294		0.4252	6294		0.5124	6294		0.4454
6295		0.3267	6295		0.3446	6295		0.3433
6296		0.3223	6296		0.3446	6296		0.3484
6297		0.3223	6297		0.3446	6297		0.3811
6298		0.3223	6298		0.3446	6298		0.35
6299		0.4111	6299		0.207	6299	aberrant	0.2549
6300		0.6874	6300		0.3446	6300		0.5396
6301		0.5698	6301		0.3446	6301	aberrant	0.2507
6302		0.4698	6302		0.3446	6302		0.3528
6303		0.4114	6303		0.3446	6303		0.5396
6304		0.3772	6304		0.3513	6304		0.5396
6305	aberrant	0.1359	6305		0.3446	6305	aberrant	0.303
6306		0.3713	6306		0.4125	6306	aberrant	0.2947
6307		0.4277	6307		0.4687	6307	aberrant	0.2739
6308		0.3192	6308		0.3436	6308		0.4151
6309		0.4644	6309		0.2261	6309		0.4395
6310	aberrant	0.1359	6310		0.2669	6310		0.3759
6311		0.4366	6311		0.245	6311		0.3997
6312		0.5005	6312		0.3073	6312		0.4507

6313		0.3761	6313		0.2655	6313		1
6314		0.4366	6314		0.2815	6314		0.4002

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6315		0.4366	6315		0.3033	6315		0.4333
6316		0.4366	6316		0.3119	6316		0.4507
6317		0.3772	6317		0.2106	6317		0.4333
6318		0.4698	6318		0.3119	6318		0.4346
6319		0.572	6319		0.3033	6319		0.4333
6320		0.572	6320		0.2806	6320		0.4371
6321		0.572	6321		0.2829	6321		0.3759
6322	aberrant	0.1974	6322		0.2057	6322		0.4133
6323		0.572	6323		0.3641	6323		0.3779
6324		0.4362	6324		0.3499	6324		0.4371
6325		0.572	6325		0.4689	6325		0.4507
6326		0.3655	6326		0.2582	6326		0.4018
6327	aberrant	-0.0226	6327		0.4307	6327		0.4507
6328	aberrant	-0.0226	6328		0.4386	6328		0.4811
6329		0.3438	6329		0.4421	6329		0.4507
6330		0.3655	6330		0.2983	6330		0.4507
6331		0.4364	6331		0.5005	6331		0.4507
6332		0.3802	6332		0.5313	6332		0.4236
6333		0.3691	6333		0.5087	6333		0.4236
6334		0.3321	6334		0.4226	6334		0.4724
6335		0.71	6335		0.4307	6335		0.4803
6336		0.4691	6336		0.5071	6336		0.4206
6337		0.4981	6337		0.3061	6337		0.4059
6338		0.71	6338		0.4421	6338		0.3938
6339		0.642	6339		0.4916	6339		0.4092
6340		0.6074	6340		0.2583	6340		0.4507
6341		0.6074	6341		0.25	6341	aberrant	0.1542
6342		0.642	6342		0.3794	6342		0.4011
6343		0.3976	6343		0.2582	6343		0.6155
6344		0.3949	6344		0.2425	6344		0.4501
6345		0.3673	6345		0.3426	6345		0.4724
6346		0.4211	6346		0.4916	6346		0.4507
6347		0.4527	6347		0.5313	6347		0.4282
6348		0.3514	6348		0.2832	6348		0.4507
6349		0.4844	6349		0.3186	6349		0.4333
6350		0.4481	6350		0.27	6350		0.4593
6351		0.4368	6351		0.3939	6351		0.4507
6352		0.481	6352		0.3641	6352		0.4507
6353		0.405	6353		0.3906	6353		0.4333

6354		0.405	6354		0.2062	6354		0.4102
6355		0.3208	6355		0.4916	6355		0.4333

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6356		0.3399	6356		0.4386	6356		0.4333
6357		0.514	6357	aberrant	0.1246	6357		0.3517
6358		0.5195	6358		0.2844	6358		0.4333
6359		0.5496	6359		0.3794	6359		0.4333
6360		0.4458	6360		0.4151	6360		0.4116
6361		0.4039	6361		0.2425	6361		0.3398
6362		0.453	6362		0.2583	6362		0.4507
6363		0.4303	6363		0.1815	6363		0.4507
6364		0.3554	6364		0.2844	6364		0.4507
6365		0.6225	6365		0.5313	6365		0.4507
6366		0.5019	6366		0.2844	6366		0.4507
6367		0.4454	6367		0.27	6367		0.4507
6368		0.4924	6368		0.256	6368		0.4507
6369		0.3859	6369		0.2317	6369		0.4507
6370		0.4501	6370		0.2582	6370		0.4015
6371		0.4691	6371		0.2247	6371		0.3921
6372		0.4213	6372		0.2297	6372		0.4507
6373		0.4972	6373		0.2582	6373		0.4507
6374		0.3659	6374		0.4916	6374		0.4294
6375		0.3603	6375		0.3288	6375		0.4719
6376		0.5161	6376		0.4205	6376		0.4726
6377		0.4394	6377		0.4816	6377		0.4724
6378		0.3895	6378		0.4816	6378		0.4507
6379		0.3737	6379		0.4205	6379		0.4507
6380		0.3928	6380		0.4816	6380		0.4507
6381		0.4428	6381		0.414	6381		0.4507
6382		0.3903	6382		0.4205	6382		0.4507
6383		0.5164	6383		0.4058	6383		0.4507
6384		0.4966	6384		0.3819	6384		0.4039
6385		0.3511	6385		0.4816	6385	aberrant	0.2725
6386		0.457	6386		0.4422	6386		0.4333
6387		0.514	6387		0.4816	6387		0.4507
6388		0.422	6388		0.3088	6388		0.4507
6389		0.4684	6389		0.4205	6389		0.4507
6390		0.5332	6390		0.3883	6390		0.4949
6391		0.4821	6391		0.3224	6391		0.4157
6392		0.6137	6392		0.4816	6392		0.3584
6393		0.5837	6393		0.4205	6393		0.4507
6394		0.6056	6394		0.4074	6394		0.4507

6395		0.6056	6395		0.4205	6395		0.4549
6396	aberrant	0.1765	6396		0.4074	6396		0.4507

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6397		0.3488	6397		0.4175	6397		0.4371
6398		0.4783	6398		0.4816	6398		0.4507
6399		0.6896	6399		0.3088	6399		0.4333
6400		0.5864	6400		0.285	6400		0.3731
6401		0.4717	6401		0.4175	6401		0.4507
6402		0.4814	6402		0.3596	6402		0.4466
6403		0.5156	6403		0.4058	6403		0.4507
6404		0.446	6404		0.2969	6404		0.4532
6405	aberrant	0.234	6405		0.4816	6405		0.4507
6406		0.4461	6406		0.4335	6406		0.4507
6407		0.4901	6407		0.4335	6407		0.4507
6408		0.4486	6408		0.4335	6408		0.4507
6409		0.3868	6409		0.4335	6409		0.4507
6410	aberrant	0.1847	6410		0.4956	6410		0.4068
6411		0.4831	6411		0.5139	6411		0.4507
6412		0.5287	6412		0.5343	6412		0.4246
6413		0.5047	6413		0.4335	6413		0.4507
6414		0.5642	6414		0.4335	6414		0.4507
6415		0.3979	6415		0.4558	6415		0.4507
6416		0.4888	6416		0.5017	6416		0.4507
6417	aberrant	0.2211	6417		0.5139	6417		0.4371
6418		0.5435	6418		0.5139	6418		0.411
6419		0.3862	6419		0.4335	6419		0.4507
6420		0.466	6420		0.4422	6420		0.4507
6421		0.4593	6421		0.3846	6421		0.4507
6422		0.4901	6422		0.3846	6422		0.4346
6423		0.4212	6423		0.3846	6423		0.4346
6424		0.3192	6424		0.2216	6424		0.4116
6425		0.4901	6425		0.2365	6425		0.5183
6426		0.4901	6426		0.3846	6426		0.42
6427		0.4863	6427		0.3846	6427		0.4346
6428		0.303	6428		0.1915	6428		0.6449
6429		0.444	6429		0.351	6429		0.6449
6430		0.3363	6430		0.3846	6430		0.6449
6431		0.4509	6431		0.3846	6431		0.6449
6432		0.5007	6432		0.3913	6432		0.6449
6433		0.4073	6433		0.3846	6433		0.6449
6434		0.5156	6434		0.3757	6434		0.6449
6435		0.5156	6435	aberrant	0.1305	6435		0.6449

6436		0.5156	6436	aberrant	0.1305	6436		0.6449
6437		0.4901	6437	aberrant	0.1305	6437		0.6449

2018			2019			2020		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6438		0.4901	6438	aberrant	0.0993	6438		0.6449
6439		0.4474	6439		0.497	6439		0.6449
6440		0.5451	6440		0.5212	6440		0.6449
6441		0.4669	6441		0.5212	6441		0.6449
6442		0.4901	6442		0.5212	6442		0.6449
6443		0.4178	6443		0.5212	6443		0.6382
6444		0.5541	6444		0.5103	6444		0.6449
6445		0.4724	6445		0.5212	6445		0.6449
6446		0.4553	6446		0.5271	6446		0.5257
6447		0.5476	6447		0.5212	6447		0.6449
6448		0.512				6448		0.6449
6449		0.4645				6449		0.6449
6450		0.5698				6450		0.6449
6451		0.5162				6451		0.6449
6452		0.5317				6452		0.6449
6453		0.5216				6453		0.6449
6454		0.2744				6454		0.6449
6455		0.414				6455		0.6449
6456		0.2747				6456		0.6449
6457		0.5988				6457		0.6449
6458		0.5577				6458		0.6449
6459		0.5577				6459		0.6449
6460		0.5577				6460		0.6449
6461		0.2944				6461		0.6449
6462		0.4538				6462		0.5529
6463		0.4789				6463		0.6449
6464		0.5684				6464		0.6449
6465		0.6021				6465		0.6449
6466		0.5066				6466		0.6449
6467	aberrant	0.204				6467		0.6449
6468	aberrant	0.2049				6468		0.6449
6469		0.71				6469		0.6449
6470		0.71				6470		0.6449
6471		0.71				6471		0.6449
6472		0.71				6472		0.6449
6473		0.71				6473		0.6449
6474		0.4335				6474		0.6449
6475		0.4335				6475		0.6449
6476		0.4335				6476		0.6449

6477		0.3766
6478		0.3766

6477		0.6449
6478		0.6449

2018			2020		
Person	Fitting	HT	Person	Fitting	HT
6479		0.4335	6479		0.6449
6480		0.4335	6480		0.6449
6481		0.4335	6481		0.6449
6482		0.4335	6482		0.6449
6483		0.4335	6483		0.6449
6484		0.3644	6484		0.6449
6485		0.4335	6485		0.6449
6486		0.4335	6486		0.6449
6487		0.462	6487		0.6449
6488		0.4335	6488		0.6449
6489		0.4335	6489		0.6449
6490		0.4335	6490		0.6449
6491		0.4335	6491		0.6449
6492		0.462	6492		0.6449
6493		0.4755	6493		0.6449
6494		0.4335	6494		0.6449
6495		0.4335	6495		0.6449
6496		0.6896	6496		0.6449
6497		0.6896	6497		0.6449
6498		0.6361	6498		0.6449
6499		0.6363	6499		0.6449
6500		0.6896	6500		0.5396
6501		0.669	6501		0.4935
6502		0.6896	6502		0.5396
6503		0.6896	6503		0.5396
6504		0.6896	6504		0.5396
6505		0.6446	6505		0.5396
6506		0.4658	6506		0.5396
6507		0.6896	6507		0.5396
6508		0.3846	6508		0.5396
6509		0.3846	6509		0.5396
6510		0.3466	6510		0.5396
6511		0.2847	6511		0.5396
6512		0.2965	6512		0.5396
6513		0.3598	6513		0.5396
6514		0.3718	6514		0.5396
6515		0.3646	6515		0.5396
6516		0.3646	6516		0.5396
6517		0.3114	6517		0.5396

6518		0.3646	6518		0.4082
6519		0.3422	6519		0.5396

2018			2020		
Person	Fitting	HT	Person	Fitting	HT
6520		0.4162	6520		0.5396
6521		0.3646	6521		0.5396
6522		0.3646	6522		0.5396
6523		0.3422	6523		0.494
6524		0.3468	6524		0.5396
6525		0.3646	6525		0.5396
6526		0.3646	6526		0.5715
6527		0.3422	6527		0.6449
6528		0.3646	6528		0.4846
6529		0.4965	6529		0.5738
6530		0.4965	6530		0.5715
6531		0.4965	6531		0.6449
6532		0.4965	6532		0.6449
6533		0.43	6533		0.6449
6534		0.4965	6534		0.6449
6535		0.509	6535		0.6449
6536		0.43	6536		0.6449
6537		0.4965	6537		0.6449
6538		0.43	6538		0.6449
6539		0.4129	6539		0.6449
6540		0.4965	6540		0.6449
6541		0.43	6541		0.5738
6542		0.4145	6542		0.421
6543		0.4965	6543		0.5926
6544		0.4965	6544		0.5953
6545		0.4305	6545		0.6449
6546		0.4965	6546		0.6449
6547		0.5211	6547		0.434
6548		0.6055	6548		0.6449
6549	aberrant	0.2353	6549		0.6449
6550		0.4305	6550		0.5926
6551		0.5211	6551		0.6449
6552		0.4563	6552		0.6449
6553		0.2866	6553		0.6449
6554		0.4965	6554		0.5926
6555		0.4965	6555		0.5969
6556	aberrant	0.2403	6556		0.5926
6557		0.4965	6557		0.6536
6558		0.524	6558		0.6449

6559	aberrant	0.2031	6559		0.4847
6560		0.6896	6560		0.6099

2018			2020		
Person	Fitting	HT	Person	Fitting	HT
6561		0.6383	6561		0.6449
6562		0.6327	6562		0.6449
6563		0.6626	6563		0.421
6564		0.6659	6564		0.372
6565		0.6659	6565		0.4171
6566		0.6896	6566		0.372
6567		0.6896	6567		0.372
6568		0.6874	6568		0.3684
6569		0.7225	6569		0.421
6570	aberrant	0.2368	6570		0.3992
6571	aberrant	0.1556	6571		0.421
6572	aberrant	0.1742	6572		0.421
6573	aberrant	0.1742	6573		0.3992
6574	aberrant	0.1568	6574		0.3645
6575	aberrant	0.1742	6575		0.372
6576	aberrant	0.1742	6576		0.39
6577	aberrant	0.1742	6577		0.3508
6578	aberrant	0.1742	6578		0.3645
6579	aberrant	0.1742	6579		0.372
6580	aberrant	0.182	6580		0.421
6581	aberrant	0.1568	6581	aberrant	0.3102
6582	aberrant	0.1742	6582		0.537
6583		0.6422	6583		0.4165
6584		0.6191	6584		0.3698
6585		0.5948	6585		0.4555
6586		0.6106	6586		0.4411
6587		0.6149	6587		0.5734
6588		0.6896	6588		0.5129
6589		0.6191	6589		0.5626
6590		0.5244	6590		0.5404
6591		0.6405	6591		0.4376
6592		0.6896	6592	aberrant	0.2044
6593		0.6052	6593		0.599
6594		0.6191	6594		0.6052
6595		0.6896	6595		0.4337
6596		0.6896	6596		0.5734
6597		0.6896	6597		0.504
6598		0.5542	6598		0.496
6599		0.2989	6599		0.5866

6600		0.2517	6600		0.451
6601		0.2989	6601		0.618

2018			2020		
Person	Fitting	HT	Person	Fitting	HT
6602		0.2989	6602		0.4857
6603		0.6591	6603		0.4906
6604		0.58	6604		0.481
6605		0.5604	6605		0.5392
6606		0.5604	6606		0.4927
6607		0.7225	6607		0.5057
6608		0.7225	6608		0.5057
6609		0.7225	6609		0.484
6610		0.7225	6610		0.5396
6611		0.7225	6611		0.4998
6612		0.7225	6612		0.4936
6613		0.7225	6613		0.5396
6614		0.7225	6614		0.5396
6615		0.7225	6615		0.487
6616		0.7225	6616		0.5396
6617		0.7225	6617		0.5396
6618		0.6361	6618		0.4813
6619		0.6896	6619		0.484
6620		0.6361	6620		0.4849
6621		0.6896	6621		0.5396
6622		0.6896	6622		0.4167
6623		0.5583	6623		0.4338
6624		0.5362	6624		0.5396
6625		0.5362	6625		0.5396
6626		0.502	6626		0.4849
6627		0.5288	6627		0.4338
6628		0.6442	6628		0.5396
6629		0.6442	6629		0.5396
6630		0.6483	6630		0.5396
6631		0.7225	6631		0.5396
6632		0.7225	6632		0.5396
6633		0.6442	6633		0.3285
6634		0.6442	6634		0.5396
6635		0.7225	6635		0.448
6636		0.7225	6636		0.484
6637		0.7225	6637		0.5396
6638		0.7225	6638		0.4165
6639		0.6442	6639		0.504
6640		0.7225	6640		0.4849

6641		0.6483	6641		0.5396
6642		0.7225	6642		0.4456

2018			2020		
Person	Fitting	HT	Person	Fitting	HT
6643		0.6237	6643		0.5396
6644		0.6442	6644		0.4616
6645		0.7225	6645		0.448
6646		0.7225	6646		0.5396
6647		0.653	6647		0.5396
6648		0.6442	6648		0.3791
6649		0.7225	6649		0.4002
6650		0.7225	6650		0.4002
6651		0.5598	6651		0.4002
6652		0.6442	6652		0.4002
6653		0.5712	6653		0.494
6654		0.5232	6654		0.494
6655		0.5598	6655		0.428
6656		0.6442	6656		0.3966
6657		0.6442	6657		0.4462
6658		0.6442	6658		0.494
6659		0.6442	6659		0.494
6660		0.7225	6660		0.494
6661		0.5377	6661		0.4502
6662		0.5479	6662		0.3666
6663		0.5826	6663		0.3666
6664		0.7225	6664		0.3666
6665		0.2989	6665		0.3666
6666		0.2989	6666		0.3666
6667		0.2989	6667		0.4652
6668		0.2989	6668		0.4298
6669		0.3177	6669		0.4462
6670		0.2827	6670		0.3983
6671		0.6591	6671		0.4783
6672		0.2989	6672		0.481
6673		0.2457	6673		0.407
6674		0.5877	6674		0.4462
6675		0.2989	6675		0.3709
6676		0.2989	6676		0.5396
6677	aberrant	0.2231	6677		0.4536
6678		0.6052	6678		0.5396
6679		0.6066	6679		0.5396
6680		0.7225	6680		0.5396
6681		0.7225	6681		0.4893

6682		0.5776	6682		0.3665
6683		0.7225	6683		0.5396

2018			2020		
Person	Fitting	HT	Person	Fitting	HT
6684		0.6066	6684		0.4428
6685		0.7225	6685		0.5396
6686		0.7225	6686		0.5133
6687		0.7225	6687		0.4688
6688		0.5776	6688		0.5396
6689		0.7225	6689		0.5396
6690		0.6621	6690		0.3981
6691		0.7225	6691		0.4301
6692		0.6066	6692		0.4893
6693		0.5248	6693		0.5396
6694		0.5776	6694		0.3372
6695		0.7225	6695		0.5396
6696		0.6465	6696		0.4893
6697		0.6278	6697		0.4893
6698		0.6896	6698		0.5396
6699		0.2886	6699		0.4567
6700		0.6406	6700		0.5396
6701		0.6406	6701		0.421
6702		0.6874	6702		0.421
6703		0.6896	6703		0.4076
6704		0.5994	6704		0.4076
6705		0.71	6705		0.3404
6706		0.6406	6706		0.421
6707		0.6896	6707		0.421
6708		0.71	6708		0.4076
6709		0.6278	6709		0.3912
6710		0.6896	6710		0.3433
6711		0.5743	6711		0.5133
6712		0.6278	6712		0.5133
6713		0.6874	6713		0.5396
6714		0.6896	6714		0.5396
6715		0.6406	6715		0.5396
6716		0.6896	6716		0.5038
6717		0.6896	6717		0.5038
6718		0.6406	6718		0.5396
6719		0.6896	6719		0.5396
6720		0.6896	6720		0.466
6721		0.6896	6721		0.5396
6722		0.6896	6722		0.5133

6723		0.5995	6723		0.4863
6724		0.6896	6724		0.5133

2018			2020		
Person	Fitting	HT	Person	Fitting	HT
6725		0.6196	6725		0.5396
6726		0.6896	6726		0.4835
6727		0.6896	6727		0.5127
6728		0.6406	6728		0.4658
6729		0.6896	6729		0.4975
6730		0.6896	6730		0.4975
6731		0.6896			
6732		0.6412			
6733		0.6896			
6734		0.6896			
6735		0.6896			
6736		0.6406			
6737		0.6406			
6738		0.6549			
6739		0.6406			
6740		0.4572			
6741		0.3242			
6742		0.4704			
6743		0.3244			
6744		0.4123			
6745		0.4123			
6746		0.3244			
6747		0.3862			
6748		0.3492			
6749		0.4123			
6750		0.3826			
6751		0.4687			
6752		0.6412			
6753		0.6896			
6754		0.4469			
6755		0.3932			
6756		0.5033			
6757		0.32			
6758		0.2594			
6759		0.2818			
6760		0.4123			
6761		0.2539			
6762		0.2818			
6763		0.6366			

6764		0.6366
6765		0.6366

2018			2018			2018		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6766		0.6366	6807		0.4697	6848		0.6515
6767		0.7225	6808		0.5489	6849		0.6515
6768		0.6896	6809		0.5296	6850		0.6515
6769		0.6366	6810		0.5671	6851		0.6515
6770		0.656	6811		0.5419	6852		0.6515
6771		0.6366	6812		0.5217	6853		0.6515
6772		0.6366	6813		0.5296	6854		0.7225
6773		0.6366	6814		0.5579	6855		0.6515
6774		0.5919	6815		0.5489	6856		0.6626
6775		0.6176	6816		0.5524	6857	aberrant	-0.0995
6776	aberrant	0.1625	6817		0.4697	6858		0.6626
6777		0.6874	6818		0.4826	6859		0.6725
6778		0.4245	6819		0.575	6860		0.5771
6779		0.3023	6820		0.5213	6861	aberrant	-0.0995
6780		0.3831	6821		0.4182	6862	aberrant	-0.0099
6781		0.4223	6822		0.4208	6863	aberrant	-0.0358
6782		0.4012	6823		0.536	6864		0.6896
6783		0.71	6824		0.4614	6865	aberrant	-0.0099
6784		0.6621	6825		0.4005	6866		0.7225
6785		0.6896	6826		0.4995	6867		0.71
6786		0.3698	6827		0.6162	6868		0.71
6787	aberrant	0.2269	6828		0.425	6869		0.6896
6788	aberrant	0.2269	6829		0.525	6870		0.6529
6789	aberrant	0.1401	6830		0.5812	6871		0.6896
6790	aberrant	0.1626	6831		0.5812	6872		0.71
6791	aberrant	0.2025	6832		0.4357	6873		0.6896
6792	aberrant	0.2025	6833		0.3107	6874		0.71
6793		0.6874	6834		0.5812	6875		0.6545
6794		0.6874	6835		0.5942	6876		0.6896
6795		0.6874	6836		0.42	6877		0.6896
6796		0.5057	6837		0.3953	6878	aberrant	0.1987
6797		0.3585	6838		0.5386	6879	aberrant	0.199
6798		0.6874	6839		0.6162	6880		0.5529
6799		0.3585	6840		0.7225	6881	aberrant	0.1987
6800		0.5988	6841		0.7225	6882		0.6896
6801		0.4953	6842		0.7225	6883		0.6626
6802		0.4638	6843		0.6137	6884		0.622
6803		0.48	6844		0.6896	6885		0.5753
6804		0.5296	6845		0.6406	6886		0.6052

6805		0.5444	6846		0.6515	6887		0.622
6806		0.5524	6847		0.4863	6888		0.6626

2018			2018			2018		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
6889		0.6626	6930		0.6274	6971		0.6896
6890		0.6383	6931		0.6635	6972		0.5386
6891		0.6383	6932		0.6668	6973		0.5386
6892		0.6465	6933		0.6375	6974		0.5709
6893		0.6896	6934		0.586	6975		0.6306
6894		0.6289	6935		0.5572	6976		0.5768
6895		0.6165	6936		0.6274	6977		0.5901
6896		0.631	6937		0.5172	6978		0.6316
6897		0.6065	6938		0.6274	6979		0.6316
6898		0.5766	6939		0.6274	6980		0.4436
6899		0.6383	6940		0.6896	6981		0.4436
6900		0.3079	6941		0.6635	6982	aberrant	0.1543
6901	aberrant	0.2154	6942		0.6256	6983	aberrant	0.1722
6902	aberrant	0.2423	6943		0.6154	6984	aberrant	0.1722
6903		0.3597	6944		0.6218	6985	aberrant	0.2147
6904		0.3262	6945		0.6896	6986	aberrant	0.1722
6905		0.4056	6946		0.6896	6987	aberrant	0.1722
6906		0.2561	6947		0.6668	6988	aberrant	0.1722
6907		0.3075	6948		0.6316	6989	aberrant	0.1722
6908		0.3075	6949		0.4608	6990		0.25
6909		0.3597	6950	aberrant	0.1875	6991	aberrant	0.1722
6910	aberrant	0.2435	6951	aberrant	0.1054	6992		0.6201
6911		0.3109	6952		0.5577	6993		0.5161
6912		0.3597	6953		0.5577	6994		0.515
6913		0.2911	6954		0.5577	6995		0.642
6914		0.4873	6955		0.5845	6996		0.5848
6915		0.5959	6956		0.5577	6997		0.6406
6916		0.4873	6957		0.691	6998		0.6896
6917		0.6185	6958		0.5577	6999		0.584
6918		0.6185	6959		0.4575	7000		0.6201
6919		0.458	6960		0.5577	7001		0.5213
6920		0.6185	6961		0.5577	7002		0.6406
6921		0.6185	6962		0.5577	7003		0.6896
6922		0.6896	6963		0.6896	7004		0.5814
6923		0.6185	6964		0.6896	7005		0.6896
6924		0.6185	6965		0.6896	7006		0.6896
6925		0.6446	6966		0.6896	7007		0.5891
6926		0.6316	6967		0.6896	7008		0.6635
6927		0.6073	6968		0.653	7009		0.6896

6928		0.581	6969		0.6896	7010		0.6896
6929		0.6073	6970		0.6896	7011		0.5638

2018			2018			2018		
Person	Fitting	HT	Person	Fitting	HT	Person	Fitting	HT
7012		0.4565	7053		0.4335			
7013		0.4546	7054		0.3273			
7014		0.6516	7055	aberrant	0.2089			
7015	aberrant	0.1631	7056		0.5036			
7016		0.2885	7057	aberrant	0.2034			
7017	aberrant	0.2028	7058		0.6896			
7018	aberrant	0.1757	7059		0.5753			
7019	aberrant	0.2028	7060		0.3709			
7020	aberrant	0.1757	7061		0.2842			
7021	aberrant	0.1738	7062		0.5836			
7022	aberrant	0.2028	7063		0.5753			
7023		0.249	7064		0.5879			
7024	aberrant	0.0439	7065		0.3766			
7025		0.6896	7066		0.45			
7026		0.6896	7067		0.2577			
7027		0.6309	7068		0.4335			
7028		0.6309	7069		0.6123			
7029		0.6896	7070		0.532			
7030		0.6896	7071		0.5836			
7031		0.6896	7072		0.4067			
7032		0.6154	7073		0.3446			
7033		0.6502	7074		0.5906			
7034		0.6137	7075		0.4499			
7035		0.6259	7076		0.4572			
7036		0.6502	7077		0.5172			
7037		0.6502	7078		0.7291			
7038		0.6896	7079		0.4646			
7039		0.5719	7080		0.3668			
7040		0.5719	7081		0.4335			
7041		0.5719	7082		0.2662			
7042		0.6527	7083		0.2147			
7043		0.6502	7084		0.6154			
7044		0.5842	7085		0.2561			
7045		0.4646	7086		0.5529			
7046		0.7225						
7047		0.2871						
7048		0.6268						
7049		0.4335						
7050		0.2697						

7051		0.5044
7052		0.362