**A Study of Estimation Techniques
of Software Defect Content**

by

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Abstract

Software inspection is an industry-proven best practice for software quality assurance. It is a powerful tool for detecting faults in software during the early phases of its life cycle. Deciding when to stop inspections is an important determinant of inspection effectiveness. One of the preferred techniques for making that decision is to estimate the number of defects remaining in an inspected artifact. With this estimate it is possible to objectively decide whether to reinspect the artifact or it can pass to the subsequent phase. Capture-recapture (CR) models, used in biology to estimate the size of animal population, have been proposed as an objective method for controlling software inspections.

In this study, we performed extensive Monte Carlo simulations for the evaluation of six CR models under realistic software conditions. These models were evaluated with respect to their median relative error and decision accuracy. Realistic conditions include a small number of rather difficult defects and few inspectors. Important results of the evaluation are that most models fail to estimate the defect population, often 90% of the simulations and MtCh is the most robust model. Due to the general failure of CR models under realistic conditions, we investigate an alternative approach: the use of subjective estimates of effectiveness by the inspectors for making the reinspection decision. We looked into Bayesian CR models for estimating the defect content. Our

results suggest that introducing the subjective estimate significantly improves the decision accuracy (DA) over the previously used CR models.

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Abbreviations and Symbols

CR	Capture-Recapture
DA	Decision Accuracy
DCET	Defect Content Estimation Technique
DDE	Defect Detection Effectiveness
DPM	Detection Profile Method
Er	Offset from the actual mean
E (p)	Prior Mean
IQR	Inter Quartile Range
Med (RE)	Median Relative Error
RDA	Relative Decision Accuracy
RE	Relative Error
M0	CR model: Maximum Likelihood Estimator
MtMLE	CR model: Maximum Likelihood Estimator
MtCh	CR model: Chao Estimator
MhJE	CR model: Jackknife Estimator
MhCh	CR model: Chao Estimator
MthCh	CR model: Chao Estimator

Chapter 1

Introduction

The purpose of this Chapter is to give an introduction into the thesis. The Chapter also provides the motivation for application of defect content estimation techniques for software inspection and explores the contribution of this thesis towards the existing work.

1.1 Overview

Software inspection is a method for statically verifying documents. Throughout the development phases of a software project, project managers need feedback on product quality to decide on appropriate further development and quality assurance activities. Inspection of software products is a cost-effective way to find defects for timely removal and to determine the quality level of working products immediately after their development (Gilb 1993). Michael Fagan first described software inspections in 1976 (Fagan 1976). Since then there have been many variations and experiences described. A typical inspection involves a team of three to five people examining and understanding a document to find defects. After Fagan's seminal work in 1976, Fagan,

and others have shown that software inspection can lead to the detection and correction of anywhere between 50 and 90 percent of the defects in a software artifact. In addition to Fagan's papers describing his experiences (Fagan 1976, 1986), there are many other favorable reports. For example, Doolan (Doolan 1992) reports industrial experience indicating a 30 times return on investment for every hour devoted to inspection of software requirement specifications. Russell (Russell 1991) reports a similar return of 33 hours of maintenance saved for every hour of inspection invested. The magnitude of this benefit depends primarily on the quality of the inspection.

Contemporary research has focused on improved reading techniques and on reinspections for increasing the effectiveness of inspections (Emam and Laitenberger 2001). Our focus in this research is on the latter. Reinspections can be considered a part of the general problem of when to stop inspections. The decision of whether to reinspect, further depends on a good estimation of the number of defects in the software artifact.

In the recent past, there has been a mushrooming of research activity in developing and improving defect content estimation techniques (DCETs) for software inspections. All of these techniques use quantitative models for estimating the number of defects in a software document from data collected after a software inspection has been carried out. The logic behind applying DCETs is that by estimating the number of defects in a document, the remaining defects can be calculated, and subsequently an objective

decision can be made on whether to reinspect the software document or let it pass to the next phase. In this manner, the document quality (defined in terms of defect density) and the inspection process quality (defined in terms of its effectiveness) can be controlled.

1.2 Motivation

In a given piece of software there are defects with varying degree of difficulty. Defects that are hard to detect are known as the major defects and the defects that are easy to detect are referred to as the minor defects. While it is relatively easier to find and correct minor defects, the major defects, though their number is small, remain largely undetected and cause potentially the most serious damage. Project managers are primarily interested to determine the number of major defects in the product, which may have strong impact on product quality as well as on the project schedule and cost, if they go undetected. An estimate of the remaining number of defects is needed in time to decide on appropriate further development and quality assurance activities. The accuracy of defect content estimation techniques (DCET) is an important issue for their use in industrial practice. They tend to underestimate when a few data points are available, e.g., from inspections with a small number of inspectors or if inspectors find very few defects (Briand *et al.* 2000).

We wanted to evaluate the six CR models used by Emam and Laitenberger (2001) under a more realistic scenario of few major defects. Even though, the major defects are fewer

in number, their impact on a product is expensive. We wanted to know the performance of the models when the defect population is low. We selected two levels of difficulty for the defects, detection probability of 0.1 (very difficult to find) and detection probability of 0.4 (moderately difficult defects). We used 10, 20 and 30 defects for our simulations. Our study also used 2, 3 and 4 inspectors with varying capabilities. Our results were consistent with the previous study by Emam and Laitenberger (2001). However, these studies suggest that the CR models considered were not entirely satisfactory, they break down with sparse data, the details of which are described in Chapter 5. Therefore, further work is required in testing and improving the CR models under realistic conditions. There is a need to add more information to the models to improve their accuracy. Specifically, three promising avenues seem worthy of consideration.

The first avenue is to improve on the objective data, e.g., by adding metrics such as size of the module under inspection and effort to the models. The limitations associated with these two parameters are: firstly, it is hard to get people to accurately collect objective data consistently and secondly, the size depends on the type of artifact. We would need a different model for each artifact.

The second avenue is to look into subjective data. There is evidence that subjective estimates by professional inspectors of their personal effectiveness can be very accurate. This approach is appealing because it requires the estimate from the most experienced inspector, therefore is applicable irrespective of the total number of inspectors in the

team. Also, it does not require significant changes to an existing inspection implementation such as collecting more detailed data on defects, nor any extra effort for inspection participants. Therefore, we decided to take this approach (see Chapter 6 for details).

The third avenue is to use models that use estimation techniques particularly suited to small data sets, e.g., used to estimate the size of endangered species. We strongly recommend this approach for future work.

Considering the various approaches, we were then, encouraged to look into the subjective estimation techniques. In the CR models, we only considered the capability of the inspectors in an objective manner and not their experience, which is a subjective quantity. The motivation for investigating the subjective estimates of effectiveness comes from the earlier work of Emam *et al.* (1999). In a study comparing code reading, functional testing, and structural testing, it was noted that readers could estimate quite accurately their own effectiveness.

In software inspection, often the inspectors can, to some degree of certainty based on their experience, predict the percentage of defects found by them after the inspection process. This prior information can be used in capture-recapture context to formulate Bayesian models. In fact, Bayesian techniques are applied in wildlife studies. However, so far, such techniques have not been applied to software engineering studies. We

decided to apply the Bayesian techniques for the first time, to estimate the defect population from the inspected data. The details of the Bayesian model used is described in Chapter 6. In short, the prior information of the inspectors is described as a beta-distribution. The prior modifies the likelihood distribution to give a posterior distribution. This posterior distribution is then, used to estimate the total population of defects in the artifact.

1.3 Main Contribution

In this thesis, we investigate the accuracy of objective and subjective defect content estimation techniques. Objective DCETs require input from a high-quality data collection process, but do not depend on personal opinion. Subjective estimates on the other hand depend on the knowledge and capability of the individual inspector, who inspects the object carefully and reports the defects. The basic concept behind the subjective estimates is to ask inspectors after an inspection to estimate the percentage of defects in a document they believe they have actually found (Emam *et al.* 1999). Combining this information with a Bayesian DCET, one can estimate the total number of defects in a document and eventually the remaining number of defects.

Previous research works were conducted using mixed type of defects i.e., both minor and major defects, therefore they gave optimistic results. CR models, most popular objective DCET, were used for the estimation of the number of defects in the artifact. From the results it was concluded that CR models are usable in software engineering

context. We want to evaluate both the objective and subjective DCETs under a realistic scenario. A realistic scenario is the one which includes a few defects that are hard to detect and by a few inspectors. It is these hard defects, if left undetected at an early stage, can cause serious damage to the software at some later point of time, that can prove costly for the organization. In this thesis we present results of an extensive Monte Carlo simulation that evaluates the accuracy of objective and subjective DCET regarding major defects that are few in number. CR models represent the most popular objective DCET and Bayesian model represents the subjective DCET used in this context. The advantage of a simulation is that we can obtain a general picture of the utility of the models with two to four inspectors. The objectives of the simulation are to:

- Identify the best performing DCET in terms of decision accuracy
- Identify the most robust DCET considering the number of failures

Important results of the objective DCET i.e., CR models are 1) that most models fail to estimate the defect population, often 90% of the simulations; 2) that MtCh is the most robust model, which underestimates median relative error, gives zero failures and has the best decision accuracy; 3) that the accuracy of the models depends strongly on the overlap of defects found by the inspectors; 4) that the previous studies did not look into the realistic conditions, therefore gave optimistic results.

The main highlights of the Bayesian results are as follows: 1) the DA increases as the number of inspector increases; 2) the DA for the team of experts is significantly more than the DA of a team of novices; 3) the DA increases with increasing number of defects for a given number of inspectors; 4) the DA decreases as the standard deviation of the prior increases; 5) the failure rate increases when the abilities of the inspectors decrease and also when the defects become more difficult to find.

1.4 Thesis Outline

In Chapter 2, we discuss the inspection process in detail along with the background regarding CR models in software engineering context. Chapter 3 discusses the fundamental concepts of CR models and their estimators. In Chapter 4, we give the overview of the research method and the evaluation criteria of different estimation techniques. In Chapter 5, we present the results of the evaluation done on CR models. Chapter 6 discusses the subjective DCET, i.e., Bayesian model. The theory behind this model as well as the results of the Bayesian model are presented and discussed in this Chapter. We compare the results of objective and subjective DCET in Chapter 7. The research is concluded in Chapter 8 along with the scope for future work.

Chapter 2

Inspection Process, Estimation Techniques: An Overview

This Chapter describes the inspection process and discusses the application of capture recapture to software inspection.

2.1 Background

A high quality inspection must ensure that most of the detectable defects in a software artifact are indeed detected. In practice, however, it has been shown that the effectiveness of inspections can vary widely. This variation is due to the fact that companies may not have implemented an optimal inspection solution given their environment and development situation. Other plausible causes are differences in artifacts being inspected and available resources to perform inspections. Whenever possible, a company should strive to optimize known inspection success factors, such as using more experienced inspectors or making sure the artifact is read at an appropriate rate (Briand *et al.* 2000).

According to Briand *et al.* (1998) the full potential of software inspections can be exploited if the following issues are taken care of:

- Systematic reading techniques that tell inspection participants what to look for and, more importantly, how to scrutinize a software artifact for defects.
- Ways to control the resulting quality of an artifact after inspection, e.g., remaining number of defects, and decide about further reinspection.
- Ways to plan inspections to ensure enough effort is assigned to meet quality requirements.
- A good understanding of the driving factors that may optimize their benefits.

2.2 Inspection Process

Before the inspectors can start reading, the document to be inspected has to be considered final, i.e. it is not changed until the end of the inspection as we only consider the concept of closed population for our research (see Section 3.2).

The inspection process is then performed by the following four procedures as shown in Fig. 2.1.

- *Planning:* The planning activity is performed by the organizer who is responsible for setting up an inspection for a particular software artifact. This phase includes the selection of inspectors, their assignment to roles, the scheduling of the inspection meeting, and the partitioning and distribution of the inspection material.
- *Detection:* The defect detection phase can be considered the core of an inspection process. The document is distributed to several inspectors. Each

inspector reads the document carefully using a selected reading technique. Inexperienced inspectors, for example, may be given a defined procedure how to analyze the document, called Checklist-Based Reading approach (Fagan 1986). While experienced inspectors may use only the experience and knowledge they have about inspecting documents, called the Perspective-Based Reading techniques (Basili 1996).

This thesis deals with the first approach i.e., Checklist-Based Reading Technique.

Fig. 2.1: Inspection Process

- *Collection:* The potential defects found during detection are evaluated and if approved as defects, they are added to an inspection defect list. The collection can take two forms: either an inspection meeting takes place or a single person merges the defects found by the individual inspectors. When an inspection meeting is performed, additional defects, so called meeting gains, can be found

due to group synergy. The group can consist of up to twelve inspectors for the meeting (Eick 1992).

- *Correction:* The defects in the defects list have to be corrected by the author of the document. After this correction, the document is passed to the next development stage or is subjected to further inspection.

2.2.1 Reading Techniques

- Checklist-Based Reading technique

Checklist-based reading technique (Fagan 1986) is the most common. An inspector is given a checklist consisting of several questions. These questions should be answered during the inspection, which cannot be answered without inspecting the product in detail. The checklist-questions can vary from very superficial questions to sophisticated and complex ones. The inspector has to match the questions to the tasks he performs during the defect detection. The checklist guides him with the parts that are to be checked and the aspects he should think of.

- Perspective-Based Reading technique

Perspective-Based Reading (Basili 1996) focuses on the point of view or needs of the customers or consumers of a document. Throughout the reading process, inspectors follow a scenario. A scenario tells an inspector how to read an artefact from one particular perspective and what to look for in the artefact. For each perspective, activities have to be performed with the inspected document.

For example, considering a module specification, one inspector might use the perspective of a tester who has to develop test cases for this module. Another inspector might have the perspective of a developer who has to do the low-level design for this module. Each inspector tries to “use” the document for his particular purpose.

2.2.2 When to Stop Inspections

At the end of the collection step one needs to make a decision whether the inspected artifact is of sufficient quality, once all of the identified defects have been corrected or a reinspection is required. Making such a decision as objectively as possible is, therefore, a practical problem to address.

Several approaches have been suggested to decide whether to reinspect an artifact or rather when to stop the inspections (Briand *et al.* 1997).

- The first one is to let inspection participants make the reinspection decision at the end of the inspection meeting. It has been suggested that subjective estimates of inspection effectiveness have good accuracy and can be applied to make the reinspection decision. However, it was noted that complete reliance on subjective estimates dilutes the transparency of the decision making process and can also lead to politically motivated decisions, and therefore objective reinspection criteria are also necessary.
- The second approach requires a comparison of inspection results with representative benchmarks, e.g. a document is reinspected for a second time if

the number of defects is significantly different from historical average. Such an approach is reliable only when defect densities are roughly constant across inspected artifacts.

- The third approach compares the inspection results with a baseline for defect density. This uses upper and lower thresholds on the number of defects found per unit of size. Following this approach, however, raises the risk that inspectors are tempted to only find a passing number of defects regardless of the documents quality.
- The fourth approach is to use the number of detected defects in the software artifact to estimate the remaining number of defects. This estimate is then used as the basis for deciding whether to reinspect or to pass the document to the next phase. Estimation models based on the number of defects found by an inspection team can help make the reinspection decision more objectively.

This thesis addresses the issues related to the fourth approach.

2.2.3 Application of Capture-Recapture to Software Inspection

The defect estimation problem is similar to the problem of estimating animal abundance in biology and wildlife research. For example, knowing the population size of a particular kind of fish is one such problem encountered by the fisheries department. Though, the exact number is impossible to determine, a reliable estimation indicating the order of magnitude is often adequate.

The solution to this problem in wildlife research is to estimate the population size by means of capture-recapture (CR) models. During CR studies animals are captured, marked, and released on several trapping occasions. When a marked animal is captured on a subsequent trapping occasion it is said to be recaptured. Intuition indicates that few animals remain undetected if many animals are recaptured. On the other hand, if on each trapping occasion disjoint animals are caught, this indicates many uncaught animals remain in the population. CR models transfer these intuitive results into statistical estimates.

This capture-recapture principle in biology can be transferred to software inspections. Each inspector independently draws a sample from the population of defects in the inspected document. A defect discovered by one inspector and rediscovered by another is said to be recaptured. Looking at the number of defects rediscovered by independent inspectors, the total number of defects can be estimated based upon the statistical methods used in wildlife research. Subsequently, with this information, the inspection team can make the decision as to whether the document should be reinspected to reduce its defect content before passing it on to the next phase of the life cycle.

2.3 Brief History of Estimation Techniques

The concept of capture-recapture was first applied to software inspections by Eick *et al.* (1992). They were the first to adopt CR models for the inspection process at AT&T. However, in these studies the true number of defects was unknown and therefore an

evaluation of their true efficacy was not possible. Later work consisted of a Monte Carlo simulation to evaluate the robustness of different CR models (Weil and Votta. 1993).

Objective empirical evaluation of CR models started with the study of Wohlin *et al.* (1995). However, this study was conducted with non-software engineering documents. Subsequent work used software engineering artifacts (Miller 1998). All the above work utilized models that were originally developed in wildlife research. Other researchers considered the incorporation of Bayesian methods to estimate defect content (Basu and Ebrahimi 1998), performed further evaluations of CR models (Thelin and Runeson 1999a) and evaluated their applicability to perspective-based reading (Thelin and Runeson 1999b).

Wohlin and Runeson (1998) proposed methods that are based on the shape of the data when plotted according to certain rules and the data were fitted using mathematical functions. Two methods proposed were, the Detection Profile Method (DPM) and the Cumulative method. In DPM, the number of reviewers that found a specific fault are plotted in decreasing order, while the cumulative method plots the cumulative sum of faults that are found. The DPM is an intuitively appealing approach that can be easily explained graphically to non-specialists. The fault data can be approximated with a curve, and it can be used to estimate the total number of defects. The idea behind the two methods identified under this approach starts from a plot of the actual data. Through

the plot it can be understood how the actual data deviates from the assumptions of the model being used. However, DPM is unable to distinguish between the methods with statistical significance. A later study suggested a method for selecting between a CR model and the DPM (Briand *et al.* 1998a), and this was subsequently further evaluated in (Peterson and Wohlin 1999).

The use of the DPM at an insurance company in Germany and the application of CR models in telecommunications projects was reported in (Emam and Laitenberger 2001). There is a growing adoption of defect content estimation models in industrial practice, and specifically CR models.

Emam and Leitenberger (2001) reported on Monte Carlo simulation that evaluated the accuracy of CR models for two inspectors in the context of code inspections. They used two classes of faults (difficult and easy to find) together with 48 study points. Though the results looked encouraging for the use of CR models for making the reinspection decision, they are not fully satisfying. First, at a conceptual level taking advantage of bias and lack of precision to make the correct reinspection decision seems cumbersome and lacks parsimony. Furthermore, the decision accuracies while better than the default decision of always passing the document to the next phase, are frequently below the “psychological” threshold of 70% accuracy.

Biffle and Grossman (2001) investigated the accuracy of objective and subjective DCETs regarding major defects based on the defect data from one or two inspection cycles. They reported on the data from an experiment with software engineering defect data on the number of (major) defects in a requirements document. Relative error, a confidence interval, and the correctness for deciding on a reinspection were the main evaluation criteria for the models. The results indicated that all the models showed a tendency to underestimate the true number of major defects in the document.

Thus far, no empirical study on software engineering artifacts has performed a comprehensive comparison of the objective and subjective defect content estimation techniques in a realistic scenario.

Chapter 3

Fundamental Concepts of Capture-Recapture Models

This chapter provides the basic concepts of capture-recapture models and a discussion on the applicability of the most commonly used CR models to software inspections.

3.1 Overview of CR Models

Generally, capture-recapture based estimation of population size begins with sampling of the population. The results of sampling are used as parameters in an estimator function, which gives the size of the population, if certain conditions are fulfilled. In biology, capture-recapture studies are used to estimate the size of an animal population. Animals are captured, marked and then released on several trapping occasions. The number of marked animals that are recaptured allows one to estimate the total population size based on the overlap of sample. As an example of such an estimation procedure, consider the following (Briand *et al.* 2000): suppose one wants to estimate the size N of a population that does not change over time, i.e., no animals enter or leave the population through birth, death, immigration, or emigration during the entire study. A number of n_1 animals are captured on a first day. These animals are marked somehow and released into the population. After allowing some time for the marked and

unmarked animals to mix, a second trapping occasion is performed on another day. On this day, n_2 animals are captured. This sample of n_2 animals consists of m_2 animals bearing a mark (animals captured on both days) and $n_2 - m_2$ animals without a mark (newly captured animals). Assuming that the ratio of marked to total animals in the second sample is equal to the ratio of marked to total animals in the entire population, the so-called Lincoln-Peterson Estimator for the number of animals in the population can be derived (Seber, 1982):

$$\hat{N} = \frac{n_1 n_2}{m_2} \quad (3.1)$$

The value m_2 is regarded as the overlap factor in software inspections. Overlap is the identification of identical defects found by multiple inspectors. If m_2 is 0, then Lincoln-Peterson would fail to estimate the number of defects in the software artifact. Therefore, overlap is regarded as the most important factor in estimating the defect content.

The main idea behind using capture-recapture models for software engineering inspections is to let several inspectors read the same document, i.e., draw independent samples from the population of defects. Based on the overlap of defects amongst inspectors, one can estimate the number of defects remaining in a software artifact. By subtracting the number of defects that was actually found during inspection from the estimated number of defects, one can calculate the number of remaining defects. Taking into account this number of remaining defects, one can decide on a more objective basis whether the software artifact has to be reinspected. As derived earlier in wildlife

context, Lincoln-Peterson Estimator can be derived in software engineering context using two-inspectors data in the following manner.

The basic concept of a CR model can be illustrated with reference to Table 3.1 (Emam and Laitenberger, 2001). Here we have the defects found by both inspectors. The value n_{11} is the number of defects found by both inspectors. Value n_{12} is the number of defects found by inspector1 and not found by inspector2, whereas, n_{21} is the number of defects found by inspector2 and not by inspector1. The value in parenthesis is unknown. We do not know n_{22} , which is the number of defects not found by either of the inspectors.

Table 3.1: Incomplete contingency table with observed values of defects found from two inspectors.

		Found by inspector 2		
		Yes	No	
Found by inspector 1	Yes	n_{11}	n_{12}	(n_{2+})
	No	n_{21}	(n_{22})	
		n_{+1}	(n_{+2})	(N)

We define $n_{1+} = n_{11} + n_{12}$

$$n_{+1} = n_{11} + n_{21}$$

The odds ratio $\hat{\alpha}$ can be estimated by:

$$\hat{\alpha} = \frac{n_{11}n_{22}}{n_{12}n_{21}} \quad (3.2)$$

Under statistical independence, the odds ratio has a value of 1. Therefore, by rearranging Eq 3.2, we can obtain an estimate of n_{22} :

$$\hat{n}_{22} = \frac{n_{12}n_{21}}{n_{11}} \quad (3.3)$$

The total number of estimated defects in the document can be obtained by:

$$\hat{N}_{22} = \frac{n_{12}n_{21}}{n_{11}} + n_{11} + n_{12} + n_{21} = \frac{n_{1+}n_{+1}}{n_{11}} \quad (3.4)$$

3.2 Open and Closed Population

The estimation of the population size of animals depends on the nature of the population investigated, namely whether it is “closed” or “open”. A closed population is one that remains effectively unchanged during the investigation, i.e., no animal enters or leaves the population through birth, death, immigration or emigration. An open population is one that can change through such processes as birth, death and migration. In our research, CR models only consider the closed population for the purpose of estimating the population size. For software inspections it is assumed that the defects remain unchanged throughout the inspection process. Each defect is considered as an independent entity, which means any defect rectified during the inspection process does not introduce new defects nor removes other defects.

3.3 Adaptation of CR Models for Inspections

CR models, as used in software inspections make certain assumptions that differ from those used in biology. Thus, before using the models, it is necessary to investigate the various assumptions in biology and assess their validity for inspections. The basic assumptions of the Lincoln-Peterson Estimator are:

- Number of trapping occasions: only two trapping occasions are performed. For software inspections, however, one often wants to include more than two inspectors.
- Closure: no animal must leave or enter the population during the study. For inspections, this assumption is valid since all inspectors usually inspect the same population of defects.
- Capture probability: all animals are equally likely to be caught in each trapping occasion. The equivalent assumption in software inspections would be to have the same detection probability for all the defects. However, this assumption may be violated, as some defects are easier to detect than others.

For practical purposes, the first two assumptions can be easily addressed. For instance, more than two trapping occasions can be managed by calculating the weighted mean (Briand *et al.* 2000). Also, the Lincoln-Peterson Estimator can still be applied when the assumption of closure does not hold, i.e., for open population where animals can enter or leave the population, only an estimate for the population on the second trapping occasion is provided. It is the third assumption that can cause most problems in real applications: there may be inherent variability in capture probabilities (heterogeneity) of

individual animals due to age, sex, or other factors. There might also be a response to initial capture (trap response). For example, when using baited traps, animals can get fascinated by traps. Therefore, marked animals are more likely to be caught than unmarked animals, thus violating third assumption (Poll, 1991).

Various models and corresponding estimators have been developed and proposed in biology to alleviate the effects of these assumptions. The most important models, one can consider for inspection, have been described by Otis *et al.* (1978) (mentioned in Briand *et al.* 2000). They present a set of closed models that can deal with more than two trapping occasions, and that allow for a varying capture probability. The idea behind this set of models is that sources of variation are modeled which relaxes the assumption of equal capture probabilities.

3.3.1 Sources of Variation

- *Time response:* This source of variation models the fact that on different day the capture probabilities of animals might vary. For example, small mammals tend to stay in their dry homes during rainy weather. Therefore, the probability of capturing small mammals is higher for days with fine weather than for days with rainy weather. For software inspections this can be used to model inspectors with different abilities to detect defects. For example, experienced inspectors find more defects than inexperienced inspectors and therefore have a higher probability of detecting defects.

- *Heterogeneity*: In biology it models the fact that different animals vary in their probability of being captured. For example, older animals are less mobile than younger ones and stay more often in their homes. Therefore, the probability of capturing an old animal is smaller than of capturing a young animal. For software inspections this can be used to model defects that differ in their detection probability. For example, defects that are hard to detect have a lower detection probability than defects that are easy to detect.
- *Behavioral or trap response*: In addition to the above two sources of variation, Otis *et al.* (1978) consider variations due to behavioral or trap response. This reflects the fact that an animal can change its behavior due to the process of being captured and marked. When using baited traps, the probability of getting caught for the first time is less than the probability for subsequent captures. This is because the animal can get fascinated by traps, so marked animals are more likely to get caught than unmarked animals. In software inspections, this may be usable to model the fact that defects captured by more than one inspector have usually a higher probability of being detected. However, the estimators for this source of variation depend on the order of trapping occasions (i.e. inspectors). Since, no ordering of inspectors seems reasonable in the context of inspections, these estimators are not considered adequate.

With the first two relevant sources of variation one can take into account the fact that both inspectors and defects can affect the defect detection probability. Based on these

two sources of variation, four CR models can be formulated. Model M0 assumes that none of these sources of variation exist. Model Mt and Mh account for exactly one source of variation, and Model Mth accounts for both sources of variation. In order to specify the “detectability” of a defect in a more mathematical way, let us consider the following general structural model (Otis *et al.* 1978): For a given defect i and given inspector j we have

$$p_{ij} = \text{probability that defect } i \text{ is detected by inspector } j \quad (3.5)$$

This general model allows one to specify the difficulty of finding a certain defect by each inspector. In the following we will define these models in terms of p_{ij} .

a) Model M0

$p_{ij} = p$: the probability of an inspector having detected a defect is constant and does not vary with inspector or defect.

b) Model Mh

$p_{ij} = p_i$: the probability depends on the difficulty of the defect, which varies between defects, and all inspectors have the same capability of detecting a specific defect.

c) Model Mt

$p_{ij} = p_j$: the probability depends on the capability of the inspector, which varies between inspectors, and all defects are equally difficult for a given inspector.

d) Model Mth

$p_{ij} = p_i p_j$: the probability depends on the capability of the inspector as well as the difficulty of the defect, where both vary.

Model M0 is a special case of Model Mt, Model Mh, and Model Mth. Both Model Mt and Mh are special cases of Mth.

When we want to apply capture-recapture models for estimating populations or number of defects, not only do we need an appropriate CR model based on the assumptions but also a corresponding estimator for that model. While the model defines the assumptions made about the population, the corresponding estimator is a formula that actually makes the estimation under the given assumption. In order to derive these estimators, the assumptions have to be cast into a stochastic form. For a given model several estimators can be derived by applying different estimation techniques. The following table summarizes the estimators that have been considered in software engineering for each type of model.

Table 3.2: Relevant CR models and their estimators.

Model	Estimator	Notation
M0	Maximum Likelihood Estimator, Otis <i>et al.</i> (1978)	M0
Mt	Maximum Likelihood Estimator, Otis <i>et al.</i> (1978)	MtMLE
	Chao's Estimator, Chao (1989)	MtCh
	Jackknife Estimator, Burnham and Overton	MhJE

Mh	(1978) Chao's Estimator, Chao (1987)	MhCh
Mth	Chao's Estimator, Chao <i>et al.</i> (1992)	MthCh

In our study we consider all of the above models. For ease of presentation, we will refer to them in this thesis by the notation in Table 3.2.

3.4 Notation and Used Statistics

The basic capture data we obtain after an inspection can be conveniently expressed in the form of a matrix. Assuming that the total (and unknown) number of defects is N and the number of inspectors involved in the estimation procedure is k , we can write the most general information needed by those estimators as displayed below in the data matrix.

$$X = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1K} \\ x_{21} & x_{22} & \dots & x_{2K} \\ \cdot & \cdot & \dots & \cdot \\ x_{N1} & x_{N2} & \dots & x_{Nk} \end{bmatrix}$$

where
$$x_{ij} = \begin{cases} 1 & \text{if inspector } i \text{ detected defect } j \\ 0 & \text{otherwise} \end{cases}$$

For each defect one must note all the inspectors who detected this defect. Note that the matrix may not be observable in its entirety since we do not know the number of total

defects N . We observe only those rows that have at least one column with $x_{ij} = 1$ (i.e., defects that have been detected). Rows with $x_{ij} = 0$ for all the columns (i.e., undetected defects) will not appear. Hence our matrix will have only D rows, where D is the number of unique defects found during preparation ($D \leq N$).

We will now introduce a few basic statistics. They will be needed in the discussion of models and their estimators:

Table 3.3: Notations and Statistics.

$\hat{N}$	The estimate of the number of defects in the document
N	The actual number of defects in the document
Z_j	The number of defects found only by inspector j , where $j = 1, 2$
D	The number of unique defects found by the inspection team
f_i	The number of defects found i times, where $i = 1, 2$
K	Number of inspectors
n_j	The number of defects found by the j th inspector
n	Sum of the n_j : $n = \sum_{j=1}^k n_j$ Note that this statistics is different from the number of detected defects. It denotes how often defects were detected.

$\mathcal{W}$	Subset of inspectors ($1 \dots k$). This will be used to denote capture history.
n_w	Number of defects that were found by the inspectors in w

Example of Statistics Used

In order to clarify the statistics introduced above, let us consider the following example.

A data matrix is given in Table 3.4.

Table 3.4: Example for statistics used

	Insp1	Insp2	Insp3	Insp4	Insp5	Insp6
Defect 1	1	0	0	0	0	0
Defect 2	1	1	0	0	0	1
Defect 3	0	0	1	1	0	1
Defect 4	0	1	0	1	0	1
Defect 5	1	1	0	0	0	1
Defect 6	0	0	0	0	0	0

In this hypothetical example, there are $N=6$ defects in the document, $D=5$ of which have been found. Of these 6 defects, inspector 2 detected $n_2 = 3$ defects. Looking at the detection frequencies, we see that $f_3 = 4$ since defects 2, 3, 4 and 5 were detected by exactly three inspectors. $Z_1 = 1$ since inspector 1 detected 1 defect (defect 1) which is not detected by anyone else. For other inspectors $Z_j = 0$, since none of these inspectors

detected a defect that has not been detected by others. Assuming the detection history $\{1,2,6\}$ we see, that $n_{\{1,2,6\}} = 2$ since defects 2 and 5 were detected by inspectors 1,2 and 6. The value for n is 13 since 13 cells of this data matrix contain a “1”.

3.5 Capture-Recapture Models and Their Estimators

Model formulation starts out with a set of explicit assumptions (Friemut 1997). For example, the model for the Lincoln-Peterson estimator introduced earlier assumes closure and constant capture probabilities. Based on these assumptions a probability model for the sampling data is derived to express the assumptions quantitatively. A probability model is a form of mathematical representation for the observed data under a specific assumptions and as such, it provides a basis for quantitatively and explicitly incorporating the specific assumptions about closure and capture probabilities. In Lincoln-Peterson experiment it is assumed that the number of marked animals (recaptured animals) in the second sample m_2 can be characterized by a hypergeometric distribution.

$$f(m_2) = \frac{\binom{n_1}{m_2} \cdot \binom{N - n_1}{n_2 - m_2}}{\binom{N}{n_2}} \quad (3.6)$$

This probability model can then be used to derive the appropriate estimator with the required parameters. The Lincoln-Peterson estimator, for example, is the maximum-likelihood estimator for Eqn. 3.6.

We will present for each estimator the probability model characterizing the model and present the derivation of the appropriate estimators. In these derivations several statistical approaches will be used. Hence, let us take a look at some of these approaches.

Maximum Likelihood Theory

The maximum likelihood theory provides statisticians with a well-defined inference method to yield estimators. In the case of capture-recapture we have a model that is parameterized in some way. Model M_t can be parameterized by the number of total defects N and the detection probabilities for each inspector p_j . Under these parameters each occurrence of the data matrix X_{ij} (see Section 3.4) has a specific probability that can be expressed as:

$$P(X_{ij} | N, p) \quad (3.7)$$

Suppose now we have an actual sample. Then we can substitute the data for the X_{ij} values and treat this formula as function of the parameters N and p :

$$L(N, p) = P(X_{ij} | N, p) \quad (3.8)$$

This function L is called the likelihood function. The ML-estimators are simply those values of N and p that maximize the function L .

Model MO

Assumptions

Every defect has the same probability of detection for each reviewer, therefore, all defects are equally likely to be found, and there is no difference between the inspector's

abilities to detect defects. In terms of the general detection probability structure p_{ij} it can be expressed as

$$p_{ij} \equiv p$$

Estimators

Otis *et al.* (1978) derived a MLE $\hat{N}$ for this model. The minimal sufficient statistics that is required by the estimator is given by the number of unique defects and the sum of the defects that each inspector detected $\{n., D\}$. Therefore, one does not need to collect the whole data matrix (Section 3.4) to apply this estimator, but only the number of defects n_j each inspector found and the total number of defects D .

The expression for the estimator is given by

$$\hat{N} = \max \left[\ln \left(\frac{N!}{(N-D)!} \right) + (n.) \ln(n.) + (kN - n.) \ln(kN - n.) - kN \ln(kN) \right] \quad (3.9)$$

$$N \in \aleph := \{D, D+1, D+2, \dots\}$$

Model Mt

Assumptions

Every defect has the same detection probability p_j for a given inspector j . This detection probability can vary for different inspectors. Therefore, all defects are equally likely to be found but inspectors might have different “general abilities” to detect defects. In terms of the general detection probability p_{ij} it can be expressed as

$$p_{ij} = p_j$$

for all defects i . Therefore, each inspector can be described by his detection probability.

Estimators

Two estimators are used for the model Mt, estimator for model MtMLE and the Chao's estimator for model MtCh. The statistics required by the MtMLE estimator requires the number of unique defects and the number of defects that each inspector detected $\{n_1, \dots, n_k, D\}$. Therefore, it is not necessary to record the entire data matrix (Section 3.4) in order to apply this estimator. The expression for the MtMLE estimator is given by

$$\hat{N} = \max \left[\ln \left(\frac{N!}{(N-D)!} \right) + \sum_{j=1}^k n_j \ln(n_j) + \sum_{j=1}^k (N - n_j) \ln(N - n_j) - kN \ln(N) \right] \quad (3.10)$$
$$N \in \mathbb{N} := \{D, D+1, D+2, \dots\}$$

Chao's estimator requires the number of defects detected by exactly one and two inspectors as well as the number of defects that were exclusively found by inspectors $1, \dots, k$: $\{f_1, f_2, z_1, \dots, z_k\}$. Therefore, it is necessary to collect the entire data matrix (section 3.4) to apply this estimator. The expression for Chao's estimator is given by

$$\hat{N} = D + \frac{f_1^2 - \sum_{j=1}^k z_j^2}{2(f_2 + 1)} \quad (3.11)$$

Model Mh

Assumptions

Under this model each defect i has its own unique detection probability p_i , which remains constant for all inspectors. That means, that defects are different but there are

no differences between inspectors. Therefore this model can be described by the total number of defects N and the detection probabilities p_i , $i = 1 \dots N$. In terms of the general detection probability structure p_{ij} can be expressed as

$$p_{ij} = p_i$$

Estimators

Estimation under Model Mh is very difficult due to the large number of unknown parameters: for each of the N defects p_i has to be known or estimated. Burnham (1978) derived an estimator using the jackknife method of bias reduction (see Ph.D. thesis by Freimut 1997). Jackknife estimator, based on dropping one inspector from the sample is given by

$$\hat{N} = D + \frac{(k-1)}{k} f_1 \quad (3.12)$$

This procedure can be continued by dropping 2 and 3 inspectors.

Using another approach with moment estimators, Anne Chao (1987) derived an estimator that is useful when many defects have been found only once or twice. However, it depends on the assumption that the number of inspectors is sufficiently large and the p_i values are small, i.e., the defects are difficult to find.

The above two estimators are based on the detection frequencies f_i ; the number of defects found by exactly i inspectors. Therefore, it is only necessary to record by how many inspectors each defect has been found. Chao's estimator for model Mh is given by

$$\hat{N} = D + \frac{f_1^2}{2f_2} \quad (3.13)$$

Model Mth

Assumptions

This model has the combined effects of model Mh and Mt. Each defect i has a detection probability p_i of its own. This probability is raised or lowered for a specific inspector j by a factor e_j to yield the probability

$$p_{ij} = p_i * e_j$$

The factor e_j expresses a “general ability” to detect defects for inspector j . All defect probabilities are affected in the same way.

Estimators

Chao derived three estimators for this model using the concept of sample coverage Chao (1992). Only one of these estimators is implemented in the program CAPTURE, described in Otis *et al.* (1978), and is considered in this thesis. The estimator used in this thesis is given by

$$\hat{N} = \frac{D}{C} + \frac{f_1}{C} \gamma_i^2 \quad i=1,2,3 \quad (3.14)$$

where

$$\gamma_i^2 = \max \left\{ \frac{\frac{D}{C} \sum_{j=1}^k j(j-1)f_j}{2 \sum_{i < j} n_i n_j} - 1, 0 \right\} \quad i=1,2,3 \quad (3.15)$$

where

$$C = 1 - \frac{f_1 - (2f_2)/(k-1) + (6f_3)/((k-1)(k-2))}{\sum_{j=1}^k jf_j} \quad (3.16)$$

The details of the above mentioned estimators could be obtained from the Ph.D. thesis by Freimut (1997).

3.6 Program CAPTURE

CAPTURE software is developed by the department of Fishery and Wildlife Biology and Colorado Coop., Fish and Wildlife Unit, Colorado State University, USA (Otis *et al.* 1978). The program includes computations for estimators of parameters, sampling variance and covariance, test statistics, and model selection. CAPTURE computes tests to select a model from 11 possible models, and then estimates the population for capture-recapture data on closed population. We evaluated six capture-recapture models for our study. The input to the program is given in the form of a full data matrix as mentioned earlier in Section 3.3. The user's manual for the capture program could be obtained from White *et al.* (1982).

3.7 Previous Simulation Studies

There have been several previous simulation studies that investigated the behavior of the biological CR models that we consider here, some were in a wildlife context, and others were in a software engineering context. These are reviewed below to elucidate the similarities and differences with our study.

The simulations conducted by Otis *et al.* (1978) used values of N in the range between 100 to 800. While these numbers may be appropriate in a biological context, they are larger than the true number of defects that one would expect in an inspected artifact.

Chao (1987) evaluated her Mh model estimator using a Monte Carlo simulation where it was compared to the Jackknife estimator. This simulation used population sizes ranging from 200 to 400, and 5, 7, and 10 capture occasions, and very low capture probabilities. As noted above, the typical N values in software engineering would be expected to be smaller, and the studies do not indicate performance with two, three and four captures (inspectors). Another simulation by Chao (1989) to evaluate her model Mt estimator used N values of 500 and 1000 with 40 occasions.

Vander Weil and Votta (1993) performed simulations in a software engineering context. They focused on only two models, which are a subset of the models that we consider in our simulation. Furthermore, the authors assumed five inspectors in their simulation, while we focus on two, three and four inspectors. Finally, these simulations assumed artifacts with 100 defects. For the reasons mentioned above, we consider artifacts with only less than 30 defects.

The next simulation was reported in Thelin and Runeson (1999b). The objective of their simulation was to evaluate the suitability of CR models when one is using Perspective-Based Reading (PBR) techniques. We do not focus on PBR in the current study, and

assume a Checklist-Based Reading approach. The rationale is based on the results shown in a recent literature review, whereby the authors concluded that CBR is the predominant reading technique in industry (Emam and Laitenberger 2001).

The simulation study of Menkens and Anderson (1988) focused on the evaluation of CR models with small-mammal populations, which are usually small and their capture probabilities are less than 0.30. They used values of N ranging from 50 to 100, and capture occasions of 5, 7, and 10. For the Chapman estimator (model MtCh in our study) they pooled the observations from the different capture occasions into two occasions, a situation similar to ours. For the MtCh model, they found that it generally underestimates the population size and did not perform well when the data met the assumptions of model Mh and when there was extreme heterogeneity, and/or when the capture probabilities were low. However, when the data met the assumptions of model Mt and capture probabilities were not extremely low, then its negative bias decreased considerably.

The simulations by Emam and Laitenberger (2001) are the most similar to our simulations. They focused on mixed type of defects with the defect size of 30 and two-inspection team for their simulations. Whereas, our simulations are carried with only hard defects with the defect population of 10, 20 and 30, and the inspection team of 2, 3 and 4 inspectors.

Chapter 4

Research Method and The Evaluation Criteria

In this Chapter, we specify the study points for our simulations and describe various criteria used for evaluation of different models.

4.1 Factors Influencing The Performance of an Estimator

There are two main factors that can be expected to have an influence on the accuracy of the defect content estimation techniques: the number of inspectors involved in an inspection and the number of actual defects in a document.

Impact of The Number of Inspectors

One important aspect when applying DCETs for inspections is the number of inspectors involved. Intuitively, if there are more number of inspectors involved in the detection step of the inspection process, more data can be collected for the estimation and hence, the estimation can be expected to be more accurate. Yet, a large number of inspectors is not feasible for practical and economical reasons. Using many inspectors costs a lot of time since each of these inspectors has to spend time on reading the document. Additional problems occur when meetings are performed for the collection step of the

inspection process as the meetings require finding a time slot convenient for each inspector. Using many inspectors makes this difficult. As an effect of this scheduling problem, meetings might be performed later than necessary and potentially increase overall cycle time for a project.

In texts dealing with the biological application of capture-recapture models, a number of five trapping occasions (equivalent to five inspectors in software engineering) is recommended as a rule of thumb, though a number of 7 or 10 was deemed more appropriate (Otis *et al.* 1978). However, no quantitative justification or evidence is provided for this recommendation.

In the inspection literature, the reported number of inspectors that typically participate in an inspection varies. According to Eick *et al.* (1992) inspections at AT&T can involve a number of inspectors that can range upto twelve. Briand *et al.* (2000) have investigated the accuracy for inspections involving two to six inspectors. Their research recommended that capture-recapture models ought not to be used with less than four inspectors unless shown to work in a particular environment. Emam and Laitenberger (2001) report on the evaluation of capture-recapture models with two inspectors.

Due to this wide range in the number of inspectors that should be involved in the inspection process, in this thesis we investigate the accuracy of the DCETs by varying the number of inspectors from two to four.

Impact of The Number of Defects

Another factor that can influence the accuracy of the estimator is the number of defects that can be found in a document. If there were a small number of defects in a document, the number of defects found by the inspectors would be low. Therefore only a little information would be used for estimation, which might then influence the accuracy of the estimate. On the other hand, if there were many defects in the document, many defects might be detected by the inspectors. Thus, the estimate would be based on a large amount of information and would be expected to be more accurate.

The number of defects is not explicitly considered as a factor in the literature on inspections. The simulations conducted by Otis *et al.* (1978) used the number of defects that ranged between 100 to 800. Eick *et al.* (1992) presents the results of inspections with the number of defects ranging from approximately 15 to 200. In their later work they present the data matrix of an inspection meeting with a document containing 47 defects. Emam and Laitenberger, (2001) performed simulations with 30 defects with the inspection team of two inspectors. In the biological context of capture-recapture studies the population is much higher, ranging from 50 to several hundred or even thousands of animals (White *et al.*, 1982).

In this thesis, we perform the simulations with sparse data where we have considered 10, 20 and 30 defects for our simulations. In the Section 2.1, we mentioned that the defects that are difficult to detect are known as the major defects. These defects are small in

number and if left undetected can cause serious damage to the product quality. Therefore, for this reason we have considered sparse data for our simulations in the belief that this resembles an actual scenario.

4.2 Study Points

We consider the following sets of variables for our simulations: the number of difficult defects, the probability of a defect being found, number of inspectors and their defect detection capability. As mentioned earlier, we performed simulations with the population size of 10, 20 and 30 difficult defects with detection probabilities of 0.1 (very difficult to detect) and 0.4 (moderately difficult). We used 2, 3 and 4 inspectors for the simulations. The last variable that we considered for the simulations is the general defect detection effectiveness of the inspectors themselves (i.e., their ability to detect defects).

For 2-inspector simulations, the inspector abilities were denoted as P_x and P_y for inspector X and Y respectively. These abilities are defined as follows:

- $\{P_x = 0.1, P_y = 0.9\}$: one with low capability and the other with high capability
- $\{P_x = 0.25, P_y = 0.75\}$: one with low capability and other with relatively high capability
- $\{P_x = 0.4, P_y = 0.6\}$: similar capabilities
- $\{P_x = 0.3, P_y = 0.3\}$: both relatively low capabilities
- $\{P_x = 0.8, P_y = 0.8\}$: both relatively high capabilities

- $\{P_x = 0.5, P_y = 0.5\}$: both average capabilities

For 3-inspector simulations, the inspector abilities were denoted as P_x , P_y and P_z for inspector X, Y and Z respectively. These abilities are defined as follows:

- $\{P_x = 0.1, P_y = 0.5, P_z = 0.9\}$
- $\{P_x = 0.25, P_y = 0.5, P_z = 0.75\}$
- $\{P_x = 0.4, P_y = 0.5, P_z = 0.6\}$
- $\{P_x = 0.3, P_y = 0.5, P_z = 0.6\}$
- $\{P_x = 0.8, P_y = 0.5, P_z = 0.8\}$
- $\{P_x = 0.5, P_y = 0.5, P_z = 0.5\}$

For 4-inspector simulations, the inspector abilities were denoted as P_x , P_y , P_z and P_t for inspector X, Y, Z and T respectively. These abilities are defined as follows:

- $\{P_x = 0.1, P_y = 0.4, P_z = 0.6, P_t = 0.9\}$
- $\{P_x = 0.1, P_y = 0.1, P_z = 0.9, P_t = 0.9\}$
- $\{P_x = 0.5, P_y = 0.5, P_z = 0.9, P_t = 0.9\}$
- $\{P_x = 0.9, P_y = 0.9, P_z = 0.9, P_t = 0.9\}$
- $\{P_x = 0.1, P_y = 0.1, P_z = 0.1, P_t = 0.1\}$
- $\{P_x = 0.5, P_y = 0.5, P_z = 0.5, P_t = 0.5\}$
- $\{P_x = 0.5, P_y = 0.5, P_z = 0.5, P_t = 0.9\}$
- $\{P_x = 0.1, P_y = 0.5, P_z = 0.5, P_t = 0.5\}$
- $\{P_x = 0.1, P_y = 0.1, P_z = 0.1, P_t = 0.9\}$

- $\{P_x = 0.1, P_y = 0.9, P_z = 0.9, P_t = 0.9\}$

Study points for each type of simulation were constructed by combining the values of the above mentioned variables. For each study point 1000 inspections were simulated. We selected the above values for our study points due to the following reasons. Briand *et al.* (2000) suggested that, for a reasonable performance of CR models the minimum number of inspectors is 4, and Emam and Laitenberger (2001) concluded that selecting 2 inspectors is a reasonable choice. Also, a significant incremental gain in median relative error was not observed from 3 to 4 inspectors (Freimut 1997), we therefore, selected 2, 3 and 4 inspectors for our simulations. We selected the range of defects as 10, 20 and 30 due to the reason mentioned in Section 4.1. Since we are dealing with only one type of defects, i.e., the difficult defects, which can have serious impact on the software quality, therefore we chose to vary the defects using two degrees of difficulty, 0.1 (very difficult to detect) and 0.4 (moderately difficult to detect). Finally, for the last variable, we chose the same inspector abilities as was considered by Emam and Laitenberger (2001) for two inspectors. For 3 inspectors, we added an average ability inspector and likewise, for 4 inspectors, we formed the teams with low capability, average capability, high capability and mixed capabilities inspectors.

4.3 Evaluation Criteria

The main objective of our simulations was the evaluation of all the models to find the most suitable model under a realistic scenario of few difficult defects. As previously

mentioned in Chapter 2, we have extended the study by Emam and Laitenberger (2001), which considered the mixed type of defects and two-inspector capabilities for the evaluation of the six CR models.

We evaluated the performance of the capture-recapture models under the following three criteria as was done by Emam and Laitenberger (2001).

1. The central tendency of the estimator's accuracy, which explains the bias of a model. This was used to describe the average performance of an estimator. We also considered the dispersion of the relative error.
2. The failure rate of the model.
3. The decision accuracy of the model. For controlling inspections, this decision was based on whether the effectiveness of the inspection is above a specified threshold.

The above mentioned criteria are explained in detail below.

4.3.1 Bias, Failure and Dispersion

- *Bias of the Relative Error*

For each model we first computed the median relative error ($\text{med}(\text{RE})$) which is the median of the 1000 simulations. The $\text{med}(\text{RE})$ gives an indication of the bias of a model. The bias of an estimator's RE tells us how accurate the estimates are on average. RE is defined as follows:

$$RE = \frac{\hat{N} - N}{N} \quad (4.1)$$

where $\hat{N}$ is the estimated number of defects and N denotes the actual number of defects.

Bias can be expressed as the central tendency across the population of estimates, e.g., the mean or the median. A drawback regarding the mean is that it is sensitive to extreme outliers. When the maximum RE values for each estimator were observed, some estimators indeed showed large maximum values. Therefore, bias is defined here as the median RE.

- *Failure Rate*

We computed the number of times a model fails to provide an estimate. This occurs, for example, due to divisions by zero. The failure rate of a model tells us about the robustness of a model.

- *Dispersion*

Finally, we also evaluated the inter-quartile range (IQR) of the relative error. The IQR and the presence of extreme outliers were used as a measure of dispersion in relative error (i.e., whether the extent of over/underestimates is consistent). For both the med(RE) and the IQR calculations, case wise deletion of missing values was performed. Missing values occurred when an estimator fails to provide an estimate.

The bias of the RE and its dispersion can be displayed on boxplots as displayed in Fig. 4.1. In such boxplots it is possible to show the median (here: the bias), as well as the range and inter-quartile range of a given data set.

Fig. 4.1: Semantics of boxplots. Data points shown in * are the extreme outlier points. A 0 shows outlier points. A small square shows the median and the outer square depicts the inter-quartile range of the given data set.

4.3.2 Decision Accuracy Over Relative Error

Using relative error to evaluate CR models is useful for understanding the behaviour of CR models, especially the extent of over/under-estimation in software engineering context. However, relative error is not sufficient for evaluating the performance of CR models in practice. This is elaborated below.

Let us say that an inspection was performed on a document with 30 defects, and that the inspection found 20 of these. Therefore, the inspection effectiveness is $20/30 = 0.66$. Also, let the effectiveness threshold imposed by the organization be 0.57. This means

that the organization wants to ensure that its inspections attain at least 57% effectiveness. We have a CR model that underestimates systematically by 20% (i.e a relative error of -0.20). In this case, considering the relative error as an evaluation criterion (see Eqn. 4.1), the model would estimate that the document has 24 defects ($-0.20 = \frac{\hat{N} - 30}{30}$), giving an estimated effectiveness of $20/24 = 0.833$. The decision based on the estimate of the model would be to pass the document to the next phase since the inspection attained the minimal effectiveness. Therefore, even though the CR model exhibits underestimation of 20%, it still gives the correct decision. That is why relative error is not considered as a sufficient criterion for CR evaluation.

CR models are used for making a binary reinspection decision. For controlling inspections, this decision would be based on whether the effectiveness of the inspection is above a specified threshold. The effectiveness threshold is set to ensure a high quality inspection that ensures that the most detectable defects have been detected in the software artifact. Since we do not know the actual effectiveness, we use the CR estimate to calculate the estimated effectiveness.

Let Q_p denote the threshold effectiveness set by the organization, then the decision can be stated in terms of the following inequality:

$$Q_p \leq \frac{D}{\hat{N}} \quad (4.2)$$

where $\frac{D}{\hat{N}}$ is the estimated inspection effectiveness. The artifact is passed on to the next phase if this inequality is satisfied. If it is not satisfied, then the artifact should be reinspected. The whole decision for controlling inspection effectiveness across many inspections can be defined as follows:

$$\hat{\lambda} = \begin{cases} 1, \hat{N} \leq \frac{D}{Q_p} \\ 0, \hat{N} > \frac{D}{Q_p} \end{cases} \quad (4.3)$$

where $\hat{\lambda}$ is the decision based on the CR model, and is one (pass) if the estimated effectiveness is higher than or equal to a certain threshold, and zero (reinspect) if it is lower than the threshold.

As mentioned earlier, decision accuracy is used as a measure to detect how accurately the model can predict the correct decision, to reinspect or not to. In evaluating decision accuracy, one can compare the decision based on the estimates, $\hat{\lambda}$, with the decision that would be made if the CR model was perfectly accurate (i.e., always made the correct decision), which we will denote as λ :

$$\lambda = \begin{cases} 1, N \leq \frac{D}{Q_p} \\ 0, N > \frac{D}{Q_p} \end{cases} \quad (4.4)$$

The results of an evaluation study over M inspections can be placed in a confusion matrix as shown in Table 4.1.

Table 4.1: Notation for a confusion matrix showing the decision of a CR model.

		$\hat{\lambda}$		
		0	1	
λ	0	m_{11}	m_{12}	M_{1+}
	1	m_{21}	m_{22}	M_{2+}
		M_{+1}	M_{+2}	M

We consider the value of M as 1000, which is the number of simulation runs. Here, m_{11} is the number of times both $\hat{\lambda}$ and λ give the correct decision to reinspect the artifact, whereas m_{22} is the number of times both give the correct decision to pass the document. The decision accuracy in terms of the proportion of correct decisions that would be made using the estimates can be defined as:

$$\text{Decision Accuracy} = \text{DA} = \frac{m_{11} + m_{22}}{M} \quad (4.5)$$

However, this definition of decision accuracy does not take into account the improvement due to the use of the CR model estimates. Though the reinspection of an artifact is beneficial, if required, it is rarely performed in practice. Hence, the “no reinspection” can be considered as the default one. Assume, if 90% of the time the default decision is the correct one and the use of CR model estimates also results in achieving the correct decision 90% of the time, then one does not gain anything from

using the CR model estimates. It is, therefore, necessary to consider the default decision.

Relative Decision Accuracy (RDA) as proposed by Emam and Laitenberger (2001) is defined as follows:

$$RDA = DA - A_d \quad (4.6)$$

Where A_d is the accuracy obtained when using the default decision, which in our case is always pass.

Therefore,

$$A_d = \frac{m_{22}}{M} \quad (4.7)$$

The definition in Eqn. 4.5 indicates how much better a CR model estimate is beyond the default decision-making criteria. It is positive if the CR model decision is better, zero if they are the same and negative if the CR model decision is worse than the default decision. During our simulation, if there was an instance of failure of an estimator (for example, this can happen due to a divide by zero) we assign the estimator's decision to be the same as the default decision. This was done to reflect the actual scenario, and also to ensure that we remain on the conservative side while evaluating the CR models.

Also, we had used two values of thresholds, 0.57 and 0.7 for the evaluation of the models. We used these two values for Q_p during our simulation. The lower threshold intended to ensure “above average” defect detection effectiveness, and the higher threshold is intended to ensure “best in class” effectiveness.

Chapter 5

Results of Objective DCET

The purpose of our simulations has been to find the best capture-recapture model that helps us accurately predict the decision on reinspection. As previously mentioned, we have used realistic scenarios of small numbers of rather difficult defects, which can have serious impact on the quality of the product. In this Chapter, we present the results in terms of median relative error, IQR, number of failures, decision accuracy and relative decision accuracy for both the thresholds of 0.57 and 0.7 for 2, 3 and 4 inspectors and the defect size of 10, 20 and 30. The above results are also presented with respect to two degrees of difficulties, 0.1 (extremely difficult defects) and 0.4 (moderately difficult defects). Next, we present the overlap results for all the inspectors with respect to both the degrees of difficulties.

5.1 General Trend of The Results

Tables 5.1 through 5.9 show the effect of various factors on the evaluation parameters for 2, 3 and 4 inspectors and 10, 20 and 30 defects for 0.1 and 0.4 degrees of difficulties. Following are the general trends observed for the entire simulations.

- 1) We do not consider the models M0, MtMLE and MhJE further, due to high failure rate and hence poor statistics. Model MthCh fails to estimate under realistic scenario for all the study points during the entire simulations.
- 2) Most models underestimate the median relative error in the sense that they show a large negative bias, except for model MhCh, which overestimates for 3 inspectors with 20 and 30 defects, and 4 inspectors with 10, 20 and 30 defects for 0.4 degree of difficulty. The magnitude of the negative bias decreases, becomes closer to zero as the defects become less difficult to find i.e., the median relative error of 0.4 degree of difficulty shows less negative bias than that of 0.1 degree of difficulty.
- 3) Most models do not perform well in these conditions i.e., models tend to fail to estimate the population, often 90% of the simulations. Models MtCh and MhCh estimate every time. Increasing the number of inspectors from 2 to 4 does not improve the performance of the other models.
- 4) We find that as we increase the number of inspectors from 2 to 4 the number of failures decrease for any given model, and the median relative error moves closer to 0.0. Also, the failure rate decreases as we increase the number of defects and move from difficult defects to easy defects.
- 5) With models MtCh and MhCh, the scatter of relative error points is narrow for 0.1 degree of difficulty than the scatter for 0.4 degree of difficulty.

- 6) In the case of model MtCh, the DA for 0.1 degree of difficulty for 4 inspectors is higher than that of 0.4 degree of difficulty for both the thresholds, which is not the case with 2 and 3 inspectors.
- 7) There is a significant increase in decision accuracy as we move from difficult to easy defects.
- 8) DA also improves as the number of defects increase. For example, the decision accuracy for 2 inspectors and 30 defects is much higher than the decision accuracy for 2 inspectors and 20 defects with both the degrees of difficulties. The same can be said for relative decision accuracy. RDA is higher for easier defects. DA and RDA for 0.4 degree of difficulty for models MtCh and MhCh is comparable except for the cases where there is a team of novices and the degree of difficulty is extremely low, MtCh outperforms MhCh.

The following section discusses how the overlap parameter affects the failure of the models.

5.2 Overlap Parameter

The most important factor affecting the failure of the models is the overlap. Overlap is the identification of identical defects found by multiple inspectors. Experts in the team help to increase this factor. Tables 5.10 through 5.12 show the results of the overlap parameter with respect to 2, 3 and 4 inspectors for 0.1 and 0.4 degrees of difficulties. The overlap parameter can be understood by considering the case of 2 inspectors. Let P_x denote the probability of inspector x finding the defect and P_y denote the probability of

inspector y finding the defect. Since we only consider one type of defect i.e., difficult defects for our simulations, the overlap parameter for 2 inspectors is given by $P_x * P_y$. Therefore, overlap values primarily depend on the number of inspectors and their ability of finding the defects. Overlap also depends on the degree of difficulty of the defects as shown in the Tables. From the Tables it is clear that for 2, 3 and 4 inspectors the overlap parameter improves as the defects become easier to detect. This means that as the sparseness of the data matrix (see Section 3.4) decreases, the overlap increases. The data matrix is sparse when the defects are difficult to detect and also if the team of inspectors consists of novices.

5.3 Reasons for Failure of The Models

The explanation for the failure of the models can be understood from the expressions of the estimators given in Section 3.5.1. The main parameters required in the estimator of the models $M0$, $MtMLE$ and $MhJE$ are the number of unique defects found by the individual inspectors (given by n_i) and the sum of the defects found by the team (given by D). In case of our realistic scenario, when the data matrix is sparse, these parameters tend to approach zero, which results in the high failure rate of these estimators. Therefore, we observed very high failures in the cases where the overlap parameter was extremely low due to low inspector capabilities and very difficult defects. The failure rate of the models $M0$, $MtMLE$ and $MhJE$ decreased significantly when the defects became easy to detect i.e., for 0.4 degree of difficulty and also when the inspection team consisted of experts.

Table 5.1: Results for 2 inspectors and 10 defects for 0.1 and 0.4 degrees of difficulty

2 Inspectors and 10 Defects														
Model	Degree of difficulty: 0.1							Degree of difficulty: 0.4						
	Med RE	IQR	Fail	DA (.57)	RDA (.57)	DA (.7)	RDA (.7)	Med RE	IQR	Fail	DA (.57)	RDA (.57)	DA (.7)	RDA (.7)
MO	-0.75	0.13	996	0	0	0	0	-0.5	0.38	854	0.132	-0.02	0.06	0.004
	-0.8	0.1	982	0	0	0	0	-0.6	0.35	721	0.12	-0.01	0.066	0.024
	-0.8	0.1	973	0	0	0	0	-0.6	0.4	669	0.102	-0.02	0.049	0.013
	-0.9	0.1	989	0	0	0	0	-0.7	0.2	869	0.014	-0.00	0.005	0
	-0.75	0.1	942	0	0	0	0	-0.3	0.4	343	0.049	-0.07	.269	.021
MtMLE	-0.8	0.1	974	0	0	0	0	-0.6	0.4	658	0.105	-0.01	0.056	0.023
	-0.75	0.13	996	0	0	0	0	-0.5	0.2	854	0.137	-0.00	0.057	0.001
	-0.8	0.1	982	0	0	0	0	-0.6	0.25	721	0.128	-0.00	0.045	0.003
	-0.8	0.1	973	0	0	0	0	-0.6	0.3	669	0.116	-0.00	0.042	0.006
	-0.9	0.1	989	0	0	0	0	-0.7	0.2	869	0.016	0	0.004	0
MhJE	-0.75	0.1	942	0	0	0	0	-0.3	0.3	343	0.45	-0.03	0.237	-0.01
	-0.8	0.1	974	0	0	0	0	-0.6	0.3	658	0.114	0	0.046	0.013
	-0.7	0	747	0	0	0.2	0.17	-0.5	0.3	58	0.148	0	0.213	0.157
	-0.7	0	741	0	0	0.2	0.19	-0.5	0.3	78	0.129	0	0.204	0.162
	-0.7	0	754	0	0	0.2	0.17	-0.6	0.3	87	0.12	0	0.196	0.16
MtCH	-0.7	0	882	0	0	0.1	0.09	-0.7	0.1	319	0.160	0	0.274	0.269
	-0.7	0	517	0	0	0.3	0.29	-0.4	0.3	4	0.482	0	0.277	0.029
	-0.7	0	757	0	0	0.2	0.17	-0.6	0.3	85	0.117	0	0.19	0.157
	-0.9	0.2	0	0	0	0.1	0.05	-0.6	0.3	0	0.161	0.01	0.228	0.172
	-0.9	0.2	0	0	0	0.1	0.09	-0.5	0.4	0	0.178	0.05	0.366	0.324
MhCH	-0.9	0.1	0	0.01	0.01	0.1	0.11	-0.5	0.4	0	0.206	0.09	0.458	0.422
	-1.0	0.1	0	0	0	0.1	0.06	-0.7	0.4	0	0.072	0.06	0.378	0.373
	-0.9	0.2	0	0.03	0	0.2	0.24	-0.3	0.43	0	0.471	-0.01	0.439	0.191
	-0.9	0.1	0	0.01	0	0.1	0.12	-0.5	0.4	0	0.206	0.09	0.456	0.423
	-0.9	0.2	0	0	0	0.0	0.00	-0.6	0.2	0	0.176	0.03	0.159	0.103
MhCH	-0.9	0.2	0	0	0	0.0	0.01	-0.6	0.3	0	0.214	0.09	0.254	0.212
	-0.9	0.1	0	0	0	0.0	0.02	-0.6	0.3	0	0.198	0.08	0.28	0.244
	-1.0	0.1	0	0	0	0.0	0.01	-0.8	0.2	0	0.053	0.04	0.108	0.103
	-0.9	0.1	0	0.01	0.01	0.1	0.05	-0.1	0.8	0	0.401	-0.08	0.445	0.197
	-0.9	0.1	0	0	0	0.0	0.02	-0.6	0.3	0	0.196	0.08	0.298	0.265

Table 5.2: Results for 2 inspectors and 20 defects for 0.1 and 0.4 degrees of difficulty.

2 Inspectors and 20 Defects														
Model	Degree of difficulty: 0.1							Degree of difficulty: 0.4						
	Med RE	IQR	Fail	DA (.57)	RDA (.57)	DA (.7)	RDA (.7)	Med RE	IQR	Fail	DA (.57)	RDA (.57)	DA (.7)	RDA (.7)
MO	-0.8	0.05	985	0	0	0	0	-0.2	0.55	747	0.19	0.134	0.22	0.22
	-0.85	0.05	967	0	0	0	0	-0.35	0.6	531	0.24	0.197	0.35	0.34
	-0.9	0.1	955	0	0	0	0	-0.35	0.45	437	0.27	0.236	0.38	0.38
	-0.9	0.05	981	0	0	0	0	-0.65	0.25	746	0.05	0.05	0.1	0.1
	-0.8	0.2	875	0.0	0.01	0	0.02	-0.1	0.5	112	0.37	-0.02	0.53	0.41
MtMLE	-0.85	0.05	951	0	0	0	0	-0.35	0.35	434	0.25	0.229	0.37	0.37
	-0.8	0.05	985	0	0	0	0	-0.55	0.25	747	0.06	0.005	0.04	0.03
	-0.85	0.05	967	0	0	0	0	-0.5	0.4	531	0.13	0.085	0.17	0.16
	-0.9	0.1	955	0	0	0	0	-0.4	0.45	437	0.17	0.137	0.27	0.27
	-0.9	0.05	981	0	0	0	0	-0.7	0.25	746	0.02	0.021	0.07	0.07
MhJE	-0.8	0.15	875	0	0	0.0	0.01	-0.18	0.5	112	0.39	-0.01	0.46	0.33
	-0.85	0.05	951	0	0	0	0	-0.4	0.45	434	0.18	0.158	0.1	0.3
	-0.85	0	412	0	0	0.3	0.27	-0.45	0.2	1	0.05	0	0.01	0.0
	-0.85	0	407	0	0	0.3	0.27	-0.55	0.2	0	0.04	0	0.01	0.01
	-0.85	0	406	0	0	0.3	0.28	-0.55	0.25	0	0.03	0	0.01	0.01
MtCH	-0.85	0	660	0	0	0.2	0.23	-0.7	0.24	26	0.00	0	0.09	0.09
	-0.85	0.1	143	0	0	0.2	0.23	-0.3	0.2	0	0.39	0	0.13	0
	-0.85	0	390	0	0	0.3	0.3	-0.55	0.25	0	0.02	0	0.01	0.01
	-0.9	0.1	0	0	0.03	0.1	0.14	-0.55	0.35	0	0.34	0.288	0.38	0.37
	-0.9	0.1	0	0	0.03	0.3	0.28	-0.45	0.45	0	0.43	0.392	0.6	0.6
MhCH	-0.9	0.15	0	0.1	0.05	0.4	0.36	-0.35	0.4	0	0.47	0.436	0.70	0.7
	-0.95	0.1	0	0	0.01	0.2	0.19	-0.65	0.3	0	0.38	0.374	0.68	0.67
	-0.75	0.25	0	0.2	0.19	0.5	0.53	-0.15	0.45	0	0.45	0.053	0.58	0.46
	-0.9	0.15	0	0.1	0.06	0.4	0.38	-0.35	0.45	0	0.45	0.43	0.72	0.72
	-0.9	0.1	0	0.0	0.01	0.0	0.01	-0.58	0.3	0	0.26	0.207	0.26	0.25
MhCH	-0.9	0.1	0	0.0	0.01	0.0	0.03	-0.5	0.9	0	0.42	0.379	0.46	0.45
	-0.9	0.1	0	0.0	0.01	0.0	0.04	-0.35	0.9	0	0.5	0.46	0.54	0.54
	-0.95	0.1	0	0	0	0.0	0.01	-0.75	0.2	0	0.19	0.186	0.24	0.24
	-0.85	0.1	0	0.1	0.07	0.1	0.11	0.3	1.15	0	0.50	0.112	0.73	0.61
	-0.9	0.1	0	0.0	0.01	0.0	0.04	-0.4	0.9	0	0.49	0.462	0.53	0.53

Table 5.3: Results for 2 inspectors and 30 defects for 0.1 and 0.4 degrees of difficulty

2 Inspectors and 30 Defects														
Model	Degree of difficulty: 0.1							Degree of difficulty: 0.4						
	Med RE	IQR	Fail	DA	RDA	DA	RDA	Med RE	IQR	Fail	DA	RDA	DA	RDA
MO				.57	(.57)	(.7)	(.7)				.57	(.57)	(.7)	(.7)
	-0.87	0.13	977	0	0.001	0	0.002	0.1	0.7	640	0.32	0.306	0.4	0.35
	-0.87	0.04	948	0	0.003	0.0	0.005	-0.17	0.67	389	0.45	0.438	0.6	0.553
	-0.9	0.13	925	0	0.002	0	0.004	-0.17	0.6	303	0.05	0.465	0.6	0.60
	-0.93	0.03	971	0	0	0	0	-0.57	0.27	641	0.18	0.176	0.3	0.247
	-0.77	0.3	808	0.1	0.047	0.09	0.091	-0.07	0.47	34	0.47	0.175	0.7	0.629
MtMLE	-0.87	0.17	924	0	0.003	0	0.001	-0.27	0.57	282	0.46	0.46	0.7	0.608
	-0.87	0.07	977	0	0	0	0	-0.52	0.23	640	0.06	0.043	0.1	0.055
	-0.87	0.04	948	0	0	0	0.003	-0.37	0.47	389	0.27	0.256	0.3	0.345
	-0.9	0.1	925	0	0.001	0	0.003	-0.3	0.5	303	0.39	0.382	0.5	0.52
	-0.93	0.03	971	0	0	0	0	-0.6	0.3	641	0.11	0.109	0.2	0.193
	-0.77	0.17	808	0	0.017	0.06	0.056	-0.1	0.47	34	0.44	0.145	0.6	0.586
MhJE	-0.87	0.13	924	0	0	0.01	0.006	-0.3	0.5	282	0.39	0.385	0.6	0.548
	-0.9	0.07	194	0	0	0.24	0.24	-0.5	0.17	0	0.02	0	0.0	0.021
	-0.9	0.07	207	0	0	0.21	0.211	-0.5	0.2	0	0.01	0	0.0	0.005
	-0.9	0.07	186	0	0	0.246	0.236	-0.5	0.17	0	0.01	0	0.0	0.006
	-0.9	0	449	0	0	0.29	0.288	-0.7	0.17	2	0	0	0.0	0.018
	-0.8	0.13	37	0	0	0.10	0.104	-0.27	0.17	0	0.29	0	0.1	0.006
MtCH	-0.9	0.07	181	0	0	0.24	0.238	-0.52	0.17	0	0.00	0	0.0	0.006
	-0.9	0.1	0	0.1	0.079	0.24	0.237	-0.47	0.4	0	0.42	0.402	0.5	0.508
	-0.9	0.17	0	0.2	0.159	0.45	0.451	-0.33	0.43	0	0.54	0.528	0.7	0.741
	-0.87	0.17	0	0.2	0.2	0.55	0.554	-0.27	0.5	0	0.61	0.609	0.8	0.83
	-0.93	0.07	0	0.1	0.05	0.34	0.343	-0.57	0.03	0	0.6	0.6	0.8	0.8
	-0.73	0.2	0	0.4	0.427	0.71	0.71	-0.1	0.4	0	0.44	0.143	0.7	0.619
MhCH	-0.85	0.17	0	0.2	0.189	0.57	0.567	-0.3	0.5	0	0.6	0.6	0.8	0.835
	-0.9	0.07	0	0.0	0.014	0.02	0.021	-0.57	1.33	0	0.35	0.335	0.4	0.36
	-0.9	0.07	0	0.0	0.027	0.05	0.047	-0.13	1.53	0	0.59	0.575	0.6	0.608
	-0.9	0.07	0	0.0	0.034	0.07	0.071	0.03	1.3	0	0.66	0.655	0.7	0.689
	-0.93	0.07	0	0	0.003	0.03	0.025	-0.73	0.43	0	0.33	0.328	0.4	0.352
	-0.83	0.13	0	0.2	0.154	0.19	0.189	0.43	1.13	0	0.64	0.345	0.9	0.818
	-0.9	0.07	0	0.0	0.043	0.07	0.071	0.03	1.27	0	0.68	0.680	0.7	0.708

Table 5.4: Results for 3 inspectors and 10 defects for 0.1 and 0.4 degrees of difficulty

3 Inspectors and 10 Defects														
Model	Degree of difficulty: 0.1							Degree of difficulty: 0.4						
	Med RE	IQR	Fail	DA .57	RDA (.57)	DA (.7)	RDA (.7)	Med RE	IQR	Fail	DA .57	RDA (.57)	DA .7	RDA (.7)
MO	-0.8	0.2	943	0	0.00	0.0	0.01	-0.1	0.6	404	0.38	-0.02	0.3	0.15
	-0.8	0.2	935	0	0	0.0	0.01	-0.2	0.5	372	0.34	-0.02	0.3	0.15
	-0.8	0.13	920	0	0.00	0.0	0.01	-0.2	0.3	348	0.33	-0.01	0.3	0.14
	-0.8	0.15	961	0	0.00	0.0	0.00	-0.4	0.6	571	0.14	0.007	0.2	0.16
	-0.7	0.1	862	0	0.01	0.0	0.01	-0.1	0.6	124	0.57	-0.12	0.4	-0.07
	-0.8	0.2	926	0	0.00	0.0	0.01	-0.3	0.6	342	0.32	-0.04	0.3	0.13
MtMLE	-0.8	0.2	943	0	0	0.0	0.00	-0.4	0.4	404	0.37	-0.03	0.2	0.02
	-0.8	0.2	935	0	0	0	0	-0.4	0.4	372	0.31	-0.05	0.2	0.05
	-0.8	0.13	920	0	0	0	0	-0.4	0.43	348	0.28	-0.06	0.2	0.05
	-0.8	0.15	961	0	0	0	0	-0.6	0.4	571	0.11	-0.02	0.1	0.04
	-0.7	0.1	862	0	0	0.0	0.01	-0.2	0.4	124	0.58	-0.11	0.4	-0.05
	-0.8	0.2	926	0	0	0	0	-0.4	0.5	342	0.29	-0.07	0.2	0.07
MhJE	-0.7	0.2	541	0	0.11	0.4	0.39	-0.3	0.5	9	0.39	-0.01	0.5	0.29
	-0.7	0.2	565	0	0.10	0.4	0.37	-0.4	0.4	8	0.38	0.02	0.5	0.28
	-0.7	0.2	587	0	0.1	0.4	0.35	-0.4	0.3	7	0.36	0.02	0.4	0.27
	-0.7	0.1	731	0.1	0.06	0.3	0.25	-0.5	0.2	47	0.27	0.14	0.4	0.39
	-0.6	0.3	379	0.2	0.16	0.5	0.47	-0.2	0.5	1	0.67	-0.03	0.5	-0.01
	-0.7	0.3	582	0.1	0.10	0.4	0.35	-0.4	0.4	8	0.37	0.018	0.4	0.28
MtCH	-0.9	0.2	0	0.0	0.03	0.3	0.27	-0.3	0.5	0	0.41	0.01	0.4	0.25
	-0.9	0.2	0	0.0	0.04	0.3	0.27	-0.3	0.5	0	0.41	0.042	0.5	0.32
	-0.9	0.2	0	0.1	0.05	0.3	0.27	-0.3	0.5	0	0.39	0.05	0.5	0.34
	-0.9	0.2	0	0.0	0.23	0.2	0.18	-0.5	0.4	0	0.29	0.156	0.5	0.48
	-0.8	0.3	0	0.1	0.09	0.4	0.38	-0.2	0.4	0	0.60	-0.09	0.5	0
	-0.9	0.2	0	0.1	0.06	0.3	0.28	-0.3	0.5	0	0.38	0.023	0.5	0.33
MhCH	-0.9	0.1	0	0.0	0.01	0	0.04	-0.3	0.8	0	0.39	-0.12	0.1	0.23
	-0.9	0.1	0	0.0	0.01	0.0	0.04	-0.3	0.8	0	0.36	0.001	0.4	0.25
	-0.9	0.1	0	0.0	0.01	0.6	0.06	-0.3	0.8	0	0.37	0.028	0.4	0.25
	-0.9	0.2	0	0.0	0.00	0.0	0.02	-0.5	0.4	0	0.22	0.083	0.3	0.26
	-0.8	0.2	0	0.0	0.02	0.1	0.11	0	1	0	0.47	-0.23	0.4	-0.07
	-0.9	0.1	0	0.0	0.01	0.1	0.05	-0.3	0.80	0	0.34	-0.01	0.4	0.24

Table 5.5: Results for 3 inspectors and 20 defects for 0.1 and 0.4 degrees of difficulty

3 Inspectors and 20 Defects														
Degree of difficulty: 0.1								Degree of difficulty: 0.4						
Model	Med RE	IQR	Fail	DA 57	RDA (.57)	DA .7	RDA (.7)	Med RE	IQR	Fail	DA .57	RDA (.57)	DA (.7)	RDA (.7)
MO	-08	0.3	890	0.0	0.03	.05	0.05	0.05	0.6	148	.5	.204	.70	.642
	-0.8	0.15	867	0.0	0.03	.06	0.06	0	0.07	130	.45	.198	.67	.61
	-0.85	0.15	848	0.0	0.01	.06	0.06	-0.1	0.55	115	.45	.222	.65	.608
	-0.85	0.1	919	0.0	0.01	.02	0.02	-0.2	0.55	320	.41	.374	.55	.544
	-0.7	0.35	742	.11	0.11	.17	0.17	0	0.4	17	.59	-0.13	.5	.139
	-0.85	0.2	857	.01	0.03	.06	0.06	-0.1	0.55	110	.44	.222	.65	.603
MtMLE	-0.8	0.14	890	0.0	0.00	.01	0.01	-0.2	0.45	148	.36	.071	.45	.389
	-0.8	0.1	867	.01	0.01	.02	0.02	-0.15	0.55	130	.36	.113	.52	.416
	-0.85	0.1	848	.01	0.01	.02	0.02	-0.15	0.55	115	.41	.105	.56	0.51
	-0.85	0.1	919	0	0	.00	0.00	-0.35	0.55	320	.31	.274	.43	.433
	-0.7	0.25	742	.05	0.05	.09	0.09	-0.1	0.4	17	.61	-0.11	.46	0.1
	-0.85	0.15	857	.01	0.01	.02	0.02	-0.15	0.55	110	.4	.178	.57	.521
MhJE	-0.8	0.15	185	.26	0.26	.52	0.52	-0.15	0.4	0	.33	.327	.75	.69
	-0.8	0.15	199	.25	0.25	.5	0.5	-0.15	0.35	0	.32	.071	.74	.683
	-0.8	0.15	189	.23	0.23	.49	0.49	-0.2	0.31	0	.31	0.08	.72	.679
	-0.8	0.15	351	.2	0.2	.49	0.49	-0.4	0.4	0	.26	.226	.65	.647
	-0.75	0.15	66	.26	0.26	.52	0.52	0	0.35	0	.65	-0.06	.51	.155
	-0.8	0.15	185	.24	0.24	.52	0.52	-0.2	0.3	0	.30	.08	.73	.678
MtCH	-0.8	0.25	0	.2	0.2	.54	0.54	-0.2	0.45	0	.41	.114	.60	.543
	-0.8	0.25	0	.23	0.23	.57	0.57	-0.15	0.46	0	.43	.179	.64	.587
	-0.8	0.25	0	.23	0.23	.58	0.58	-0.2	0.45	0	.43	.195	.66	.614
	-0.85	0.2	0	.13	0.13	.45	0.45	-0.3	0.5	0	.51	.477	.75	.751
	-0.65	0.3	0	.37	0.37	.7	0.7	-0.1	0.4	0	.63	-0.08	.47	.116
	-0.8	0.25	0	.23	0.23	.61	0.61	-0.2	0.4	0	.42	.204	.66	.61
MhCH	-0.85	0.1	0	.05	0.05	.1	0.1	-0.3	1.3	0	.55	.257	.76	.694
	-0.85	0.1	0	.06	0.06	.11	0.11	0.15	0.96	0	.54	.292	.75	.697
	-0.85	0.1	0	.06	0.06	.13	0.13	0.1	1	0	.55	.322	.75	.709
	-0.9	0.1	0	.02	0.02	.07	0.07	-0.35	0.9	0	.52	.484	.61	.605
	-0.8	0.15	0	.17	0.17	.23	0.23	0.3	0.75	0	.43	-0.28	.57	.217
	-0.85	0.1	0	.06	0.06	.12	0.12	0.1	0.95	0	.55	.334	.76	.717

Table 5.6: Results for 3 inspectors and 30 defects for 0.1 and 0.4 degrees of difficulty

3 Inspectors and 30 Defects														
Model	Degree of difficulty: 0.1							Degree of difficulty: 0.4						
	Med RE	IQR	Fail	DA .57	RDA (.57)	DA (.7)	RDA (.7)	Med RE	IQR	Fail	DA .57	RDA (.57)	DA (.7)	RDA (.7)
MO	-0.7	0.2	827	.1	.1	.142	0.142	0.167	0.717	61	0.581	0.358	0.868	0.841
	-0.7	0.2	799	.1	.1	.152	0.152	0.067	0.63	40	0.56	0.375	0.837	0.812
	-0.7	0.2	777	.10	.102	.156	0.156	-0.03	0.533	36	0.522	0.371	0.801	0.783
	-0.8	0.2	881	.04	.037	.059	0.059	-0.07	0.7	169	0.61	0.6	0.767	0.767
	-0.6	0.37	620	.27	.273	.326	0.326	0	0.4	0	0.613	-0.11	0.543	0.274
	-0.7	0.3	778	.11	.111	.145	0.145	-0.07	0.533	35	0.526	0.373	0.79	0.771
MtMLE	-0.8	0.17	827	.03	.028	.053	0.053	-0.1	0.5	61	0.415	0.192	0.664	0.637
	-0.8	0.2	799	.05	.05	.072	0.072	-0.07	0.533	40	0.474	0.289	0.726	0.701
	-0.8	0.23	777	.06	.063	.088	0.088	-0.1	0.533	36	0.484	0.333	0.738	0.732
	-0.9	0.13	881	.02	.017	.025	0.025	-0.17	0.6	169	0.538	0.528	0.693	0.693
	-0.6	0.37	620	.19	.189	.249	0.249	-0.03	0.367	0	0.614	-0.11	0.518	0.249
	-0.8	0.27	778	.07	.066	.096	0.096	-0.1	0.5	35	0.482	0.329	0.746	0.727
MhJE	-0.8	0.13	51	.29	.288	.486	0.486	-0.1	0.267	0	0.43	0.207	0.910	0.882
	-0.8	0.13	57	.28	.28	.484	0.484	-0.13	0.233	0	0.418	0.233	0.902	0.877
	-0.8	0.13	57	.28	.278	.48	0.48	-0.17	0.267	0	0.374	0.223	0.905	0.887
	-0.8	0.07	049	.27	.268	.495	0.495	-0.33	0.233	0	0.42	0.41	0.846	0.846
	-0.7	0.23	10	.27	.267	.535	0.535	0	0.233	0	0.678	-0.04	0.636	0.367
	-0.8	0.13	59	.29	.294	.507	0.507	-0.17	0.267	0	0.385	0.232	0.893	0.874
MtCH	-0.8	0.23	0	.44	.444	.699	0.699	-0.13	0.433	0	0.448	0.225	0.731	0.704
	-0.7	0.28	0	.47	.474	.73	0.73	-0.13	0.433	0	0.468	0.283	0.763	0.738
	-0.7	0.27	0	.5	.498	.755	0.755	-0.13	0.467	0	0.469	0.318	0.762	0.744
	-0.8	0.2	0	.33	.332	.665	0.665	-0.23	0.5	0	0.635	0.625	0.858	0.858
	-0.6	0.33	0	.61	.614	.842	0.842	-0.03	0.333	0	0.64	-0.08	0.503	0.234
	-0.7	0.27	0	.49	.49	.772	0.772	-0.13	0.433	0	0.49	0.337	0.76	0.741
MhCH	-0.8	0.13	0	.14	.141	.167	0.167	0.466	1.2	0	0.666	0.443	0.894	0.867
	-0.8	0.13	0	.15	.149	.19	0.19	0.333	1.1	0	0.684	0.499	0.899	0.874
	-0.8	0.1	0	.15	.153	.201	0.201	0.267	1	0	0.694	0.543	0.909	0.891
	-0.9	0.1	0	.06	.058	.108	0.108	0.1	1.075	0	0.745	0.735	0.802	0.802
	-0.7	0.27	0	.32	.324	.358	0.358	0.267	0.667	0	0.449	-0.27	0.663	0.394
	-0.8	0.1	0	.14	.142	.2	0.2	0.267	0.975	0	0.682	0.529	0.896	0.877

Table 5.7: Results for 4 inspectors and 10 defects for 0.1 and 0.4 degrees of difficulty

4 Inspectors and 10 Defects														
Model	Degree of difficulty: 0.1							Degree of difficulty: 0.4						
	Med RE	IQR	Fail	DA (.57)	RDA (.57)	DA (.7)	RDA (.7)	Med RE	IQR	Fail	DA (.57)	RDA (.57)	DA (.7)	RDA (.7)
MO	-0.7	0.2	890	0.01	0.007	0.018	0.017	0	0.525	156	0.544	-0.12	0.435	0.026
	-0.6	0.2	890	0.011	0.004	0.023	0.022	0	0.6	164	0.548	-0.17	0.457	0
	-0.6	0.4	760	0.026	0.001	0.07	0.07	-0.1	0.4	22	0.799	-0.12	0.066	-0.15
	-0.6	0.2	643	0.076	0.005	0.148	0.133	-0.1	0.3	5	0.957	-0.03	0.847	-0.09
	-0.9	0	996	0	0	0	0	-0.8	0.2	907	0.003	0.001	0.007	0.007
	-0.8	0.2	864	0.008	0.003	0.015	0.015	-0.1	0.6	132	0.544	-0.09	0.402	0.03
	-0.6	0.4	783	0.037	0.012	0.077	0.073	0	0.4	23	0.795	-0.13	0.181	-0.20
	-0.6	0.2	813	0.016	0.004	0.037	0.035	-0.1	0.5	62	0.686	-0.13	0.516	-0.06
	-0.8	0.3	918	0.002	0.001	0.005	0.005	-0.1	0.6	268	0.357	-0.04	0.357	0.152
MtMLE	-0.8	0.3	976	0.001	0.001	0.003	0.003	-0.2	0.8	624	0.224	-0.04	0.26	0.157
	-0.7	0.1	890	0.005	0.002	0.006	0.005	-0.2	0.4	156	0.573	-0.09	0.391	-0.02
	-0.7	0.1	890	0.009	0.002	0.003	0.002	-0.3	0.4	164	0.634	0.09	0.414	-0.05
	-0.7	0.2	760	0.022	0	0.032	0.03	-0.1	0.4	22	0.836	-0.08	0.654	-0.10
	-0.6	0.3	643	0.062	-0.01	0.084	0.069	-0.1	0.2	5	0.967	-0.02	0.873	-0.06
	-0.9	0	996	0	0	0	0	-0.8	0.1	907	0.001	0	0.004	0.004
	-0.8	0.1	864	0.005	0	0.006	0.006	-0.2	0.5	132	0.543	-0.09	0.358	-0.01
	-0.7	0.3	789	0.025	0	0.026	0.022	-0.1	0.4	23	0.842	-0.08	0.665	-0.12
	-0.7	0.2	813	0.013	0.001	0.014	0.012	-0.2	0.4	62	0.724	-0.09	0.496	-0.08
MhJE	-0.8	0.2	918	0	0	0.004	0.004	-0.3	0.4	268	0.324	-0.08	0.271	0.066
	-0.8	0.2	976	0	0	0	0	-0.5	0.3	624	0.245	-0.01	0.115	0.012
	-0.6	0.1	418	0.273	0.27	0.342	0.341	-0.2	0.5	1	0.466	-0.20	0.494	0.085
	-0.6	0.1	384	0.29	0.283	0.359	0.358	-0.1	0.5	0	0.505	-0.21	0.489	0.03
	-0.6	0.2	212	0.254	0.229	0.401	0.397	0	0.4	0	0.758	-0.16	0.621	-0.14
	-0.5	0.2	110	0.217	0.146	0.41	0.395	0	0.3	0	0.922	-0.07	0.812	-0.12
	-0.6	0	929	0.063	0.063	0.063	0.063	-0.6	0.1	537	0.245	0.243	0.307	0.307
	-0.6	0.1	404	0.27	0.265	0.362	0.362	-0.2	0.5	0	0.48	-0.15	0.489	0.117
	-0.6	0.2	235	0.25	0.225	0.376	0.372	0	0.4	0	0.754	-0.17	0.618	-0.16
MtCH	-0.6	0.2	297	0.276	0.264	0.397	0.395	-0.1	0.5	0	0.644	-0.17	0.517	-0.06
	-0.6	0.1	549	0.249	0.248	0.299	0.299	-0.3	0.5	7	0.305	-0.10	0.479	0.274
	-0.6	0.1	679	0.201	0.201	0.214	0.214	-0.5	0.3	26	0.238	-0.02	0.407	0.304
	-0.8	0.2	0	0.082	0.079	0.383	0.382	-0.2	0.4	0	0.567	-0.1	0.477	0.071
	-0.8	0.2	0	0.054	0.047	0.368	0.367	-0.2	0.4	0	0.622	-0.1	0.477	0.018
	-0.7	0.4	0	0.179	0.154	0.527	0.523	-0.1	0.3	0	0.83	-0.08	0.637	-0.12
	-0.5	0.5	0	0.239	0.168	0.574	0.559	0	0.3	0	0.951	-0.04	0.846	-0.09
	-1	0.1	0	0.002	0.002	0.055	0.055	-0.9	0.2	0	0.071	0.069	0.332	0.322
	-0.8	0.3	0	0.11	0.11	0.425	0.425	-0.2	0.5	0	0.541	-0.09	0.475	0.103
MhCH	-0.7	0.3	0	0.168	0.143	0.503	0.499	-0.1	0.3	0	0.842	-0.08	0.652	-0.13
	-0.7	0.4	0	0.129	0.117	0.481	0.479	-0.1	0.4	0	0.714	-0.1	0.521	-0.05
	-0.9	0.2	0	0.065	0.064	0.316	0.316	-0.2	0.5	0	0.392	-0.01	0.493	0.288
	-0.9	0.2	0	0.014	0.014	0.143	0.143	-0.4	0.4	0	0.279	0.02	0.409	0.306
	-0.8	0.2	0	0.02	0.017	0.076	0.075	0	0.7	0	0.487	-0.18	0.442	0.033
	-0.8	0.2	0	0.027	0.02	0.08	0.08	0	1	0	0.508	-0.21	0.458	0
	-0.7	0.2	0	0.07	0.045	0.18	0.18	0.1	0.5	0	0.682	-0.23	0.454	-0.30
	-0.7	0.3	0	0.148	0.077	0.262	0.247	0.1	0.4	0	0.843	-0.14	0.655	-0.28
	-1	0.1	0	0	0	0	0	-0.9	0.1	0	0.006	0.004	0.067	0.067
	-0.8	0.2	0	0.016	0.011	0.099	0.099	0	0.7	0	0.478	-0.15	0.409	0.037
	-0.7	0.2	0	0.081	0.056	0.158	0.154	0.1	0.6	0	0.671	-0.25	0.475	-0.31
	-0.8	0.2	0	0.042	0.03	0.141	0.139	0	0.6	0	0.579	-0.24	0.445	-0.13
	-0.9	0.1	0	0.004	0.003	0.052	0.052	-0.2	0.8	0	0.372	-0.03	0.425	0.22
	-0.9	0.2	0	0.003	0.003	0.015	0.015	-0.5	0.5	0	0.288	0.029	0.325	0.222

Table 5.8: Results for 4 inspectors and 20 defects for 0.1 and 0.4 degrees of difficulty

4 Inspectors and 20 Defects														
Degree of difficulty: 0.1								Degree of difficulty: 0.4						
Model	Med RE	IQR	Fail	DA (.57)	RDA (.57)	DA (.7)	RDA (.7)	Med RE	IQR	Fail	DA (.57)	RDA (.57)	DA (.7)	RDA (.7)
MO	-0.7	0.3	783	0.087	0.087	0.13	0.13	0.1	0.5	19	0.52	-0.13	0.572	0.298
	-0.7	0.3	790	0.096	0.096	0.144	0.144	0.15	0.6	33	0.479	-0.22	0.572	0.243
	-0.5	0.45	574	0.248	0.248	0.348	0.348	0	0.3	1	0.86	-0.09	0.582	-0.19
	-0.3	0.45	397	0.384	0.377	0.516	0.516	-0.1	0.15	0	0.989	-0.01	0.903	-0.06
	-1.0	0.038	994	0	0	0	0	-0.7	0.3	821	0.05	0.05	0.087	0.087
	-0.7	0.3	746	0.091	0.091	0.153	0.153	-0.1	0.45	22	0.523	-0.07	0.535	0.30
	-0.5	0.45	604	0.23	0.23	0.31	0.31	0	0.25	1	0.857	-0.1	0.582	-0.21
	-0.5	0.4	659	0.169	0.169	0.253	0.253	0	0.3	6	0.709	-0.13	0.484	-0.02
	-0.7	0.1	840	0.036	0.036	0.075	0.075	0	0.575	85	0.468	0.17	0.673	0.61
	-0.8	0.2	943	0.011	0.011	0.019	0.019	0.25	0.65	405	0.467	0.363	0.561	0.546
MtMLE	-0.8	0.25	783	0.044	0.044	0.07	0.07	-0.1	0.4	19	0.566	-0.08	0.495	0.221
	-0.8	0.2	790	0.03	0.03	0.06	0.06	-0.1	0.4	33	0.608	-0.09	0.488	0.16
	-0.6	0.4	574	0.175	0.175	0.254	0.254	-0.1	0.3	1	1.881	-0.07	0.647	-0.13
	-0.4	0.5	397	0.306	0.299	0.418	0.418	-0.1	0.2	0	0.99	-0.01	0.926	-0.04
	-1.0	0.038	994	0	0	0	0	-0.8	0.25	821	0.033	0.033	0.058	0.058
	-0.7	0.3	746	0.063	0.063	0.101	0.101	-0.1	0.4	22	0.526	-0.07	0.504	0.267
	-0.6	0.4	604	0.138	0.137	0.215	0.215	-0.1	0.25	1	0.9	-0.05	0.675	-0.12
	-0.6	0.4	659	0.11	0.11	0.172	0.172	-0.1	0.3	6	0.741	-0.10	0.506	0
	-0.8	0.15	840	0.016	0.016	0.037	0.037	-0.2	0.55	85	0.399	0.1	0.582	0.515
	-0.9	0.1	943	0	0	0	0	-0.4	0.45	405	0.222	0.118	0.222	0.207
MhJE	-0.8	0.15	84	0.174	0.174	0.352	0.352	0.05	0.4	0	0.443	-0.21	0.603	0.329
	-0.8	0.15	85	0.166	0.166	0.331	0.331	0.1	0.4	0	0.432	-0.27	0.603	0.274
	-0.7	0.4	24	0.238	0.238	0.484	0.484	0.05	0.35	0	0.754	-0.20	0.519	0.26
	-0.5	0.4	9	0.34	0.333	0.619	0.619	0.05	0.25	0	0.938	-0.06	0.788	-0.18
	-0.8	0	797	0.163	0.163	0.165	0.165	-0.8	0.1	167	0.20	0.20	0.33	0.33
	-0.8	0.15	90	0.184	0.184	0.36	0.36	0	0.45	0	0.471	-0.13	0.568	0.33
	-0.7	0.25	24	0.204	0.203	0.482	0.482	0.05	0.35	0	0.769	-0.18	0.547	-0.25
	-0.7	0.2	47	0.193	0.193	0.421	0.421	0.05	0.4	0	0.604	-0.24	0.49	-0.02
	-0.8	0.1	170	0.20	0.20	0.313	0.313	-0.1	0.4	0	0.431	0.133	0.734	0.667
	-0.8	0.1	292	0.281	0.281	0.339	0.339	-0.2	0.4	2	0.441	0.337	0.828	0.441
MtCH	-0.7	0.3	0	0.374	0.374	0.692	0.692	-0.1	0.4	0	0.576	-0.07	0.494	0.22
	-0.7	0.3	0	0.336	0.336	0.671	0.671	-0.1	0.4	0	0.623	-0.08	0.512	0.183
	-0.6	0.4	0	0.513	0.513	0.777	0.777	-0.2	0.25	0	0.875	-0.07	0.615	-0.16
	-0.4	0.5	0	0.548	0.541	0.79	0.79	0	0.2	0	0.973	-0.03	0.89	-0.08
	-1.0	0.05	0	0.017	0.017	0.161	0.161	-0.1	0.3	0	0.336	0.336	0.661	0.661
	-0.7	0.35	0	0.427	0.427	0.73	0.73	-0.1	0.4	0	0.547	-0.05	0.492	0.255
	-0.6	0.4	0	0.497	0.496	0.762	0.762	-0.1	0.25	0	0.887	-0.07	0.67	-0.12
	0.6	0.4	0	0.48	0.48	0.755	0.755	-0.2	0.3	0	0.748	-0.09	0.50	-0.01
	-0.8	0.20	0	0.295	0.295	0.639	0.639	-0.2	0.5	0	0.434	0.136	0.626	0.599
	-0.9	0.2	0	0.103	0.103	0.373	0.373	-0.3	0.45	0	0.453	0.349	0.586	0.571
MhCH	-0.8	0.1	0	0.127	0.127	0.185	0.185	0.25	0.85	0	0.441	-0.21	0.642	0.368
	-0.8	0.15	0	0.142	0.142	0.187	0.187	0.3	0.85	0	0.427	-0.27	0.61	0.286
	-0.7	0.45	0	0.315	0.315	0.37	0.37	0.15	0.45	0	0.677	-0.27	0.46	-0.32
	-0.5	0.65	0	0.45	0.451	0.531	0.531	0.05	0.3	0	0.896	0.1	0.717	-0.25
	-1.0	0.05	0	0	0	0	0	-0.9	0.15	0	0.081	0.081	0.16	0.16
	-0.8	0.15	0	0.146	0.146	0.215	0.215	0.15	0.7	0	0.446	-0.15	0.648	0.411
	-0.7	0.363	0	0.288	0.287	0.351	0.351	0.1	0.45	0	0.708	-0.25	0.493	-0.30
	-0.8	0.3	0	0.235	0.235	0.296	0.296	0.15	0.6	0	0.54	-0.3	0.505	0
	-0.9	0.1	0	0.074	0.074	0.135	0.135	0.1	0.9	0	0.519	0.221	0.752	0.685
	-0.9	0.1	0	0.02	0.02	0.05	0.05	-0.2	1.25	0	0.497	0.393	0.56	0.545

Table 5.9: Result for 4 inspectors and 30 defects for 0.1 and 0.4 degrees of difficulty

4 Inspectors and 30 Defects														
Model	Degree of difficulty: 0.1							Degree of difficulty: 0.4						
	Med RE	IQR	Fail	DA (.57)	RDA (.57)	DA (.7)	RDA (.7)	Med RE	IQR	Fail	DA (.57)	RDA (.57)	DA (.7)	RDA (.7)
MO	-0.5	0.33	688	0.219	0.219	0.271	0.271	0.1	0.433	4	0.491	-0.14	0.70	0.51
	-0.5	0.4	701	0.212	0.212	0.267	0.267	0.167	0.467	9	0.459	-0.23	0.683	0.413
	-0.4	0.57	439	0.442	0.422	0.518	0.518	0.03	0.23	0	0.90	-0.07	0.585	-0.19
	-0.2	0.63	279	0.570	0.57	0.673	0.673	0	0.13	0	0.995	0	0.95	-0.04
	-0.9	0.1	987	0.001	0.001	0.002	0.002	-0.67	0.27	749	0.147	0.147	0.191	0.191
	-0.5	0.33	647	0.24	-0.07	0.29	0.29	0	0.37	0	0.49	0.44	0.65	0.48
	-0.4	0.57	469	0.44	-0.07	0.50	0.50	0.03	0.23	1	0.914	0.356	0.58	-0.22
	-0.4	0.5	535	0.36	-0.14	0.41	0.41	0	0.3	0	0.72	0.14	0.507	0.027
	-0.7	0.27	772	0.14	0.323	0.177	0.177	0.03	0.63	21	0.56	0.32	0.86	0.83
	-0.8	0.2	918	0.035	0.035	0.057	0.057	0.43	1.1	261	0.67	0.62	0.73	0.73
MtMLE	-0.7	0.33	688	0.13	0.13	0.192	0.192	-0.07	0.37	4	0.54	-0.08	0.557	0.368
	-0.7	0.3	701	0.114	0.114	0.17	0.17	-0.1	0.37	9	0.605	-0.09	0.501	0.231
	-0.4	0.5	439	0.379	0.379	0.456	0.456	-0.03	0.23	0	0.92	-0.05	0.64	-0.13
	-0.3	0.57	279	0.505	0.505	0.635	0.635	-0.03	0.13	0	0.99	0	0.95	-0.03
	-0.9	0.07	987	0	0	0.001	0.001	-0.73	0.32	749	0.102	0.102	0.146	0.146
	-0.6	0.37	647	0.192	0.192	0.242	0.242	-0.03	0.37	3	0.49	-0.07	0.601	0.429
	-0.5	0.43	469	0.34	0.34	0.439	0.439	-0.03	0.23	1	0.943	-0.03	0.673	-0.13
	-0.5	0.43	535	0.29	0.29	0.36	0.36	-0.03	0.3	0	0.76	-0.1	0.488	0.008
	-0.7	0.27	772	0.08	0.08	0.124	0.124	-0.06	0.5	21	0.478	0.242	0.757	0.732
	-0.9	0.1	918	0.006	0.006	0.01	0.01	-0.3	0.53	261	0.34	0.29	0.44	0.44
MhJE	-0.7	0.23	15	0.213	0.213	0.525	0.525	0.1	0.3	0	0.464	-0.16	0.72	0.535
	-0.1	0.23	12	0.218	0.218	0.514	0.514	0.17	0.37	0	0.429	-0.26	0.685	0.415
	-0.6	0.27	3	0.418	0.418	0.747	0.747	0.1	0.33	0	0.77	-0.20	0.44	-0.34
	-0.4	0.3	0	0.54	0.54	0.86	0.86	0.1	0.2	0	0.97	-0.03	0.78	-0.19
	-0.9	0	647	0.239	0.239	0.245	0.245	-0.77	0.13	45	0.173	0.173	0.414	0.414
	-0.7	0.23	17	0.225	0.225	0.525	0.525	0.03	0.33	0	0.46	-0.09	0.67	0.5
	-0.6	0.27	5	0.39	0.39	0.756	0.756	0.13	0.3	0	0.797	-0.18	0.438	-0.37
	-0.7	0.27	8	0.32	0.32	0.647	0.647	0.1	0.33	0	0.583	-0.28	0.49	0.008
	-0.8	0.167	45	0.18	0.18	0.412	0.412	0	0.36	0	0.581	0.345	0.882	0.857
	-0.8	0.1	107	0.202	0.202	0.324	0.324	-0.1	0.4	0	0.662	0.615	0.980	0.98
MtCH	-0.6	0.33	0	0.612	0.612	0.826	0.826	-0.07	0.33	0	0.554	-0.07	0.537	0.348
	-0.6	0.33	0	0.585	0.585	0.819	0.819	-0.07	0.33	0	0.608	-0.09	0.53	0.257
	-0.4	0.408	0	0.707	0.707	0.876	0.876	-0.03	0.23	0	0.904	-0.07	0.625	-0.15
	-0.3	0.53	0	0.706	0.706	0.868	0.868	0	0.17	0	0.99	-0.01	0.93	-0.05
	-1.0	0.1	0	0.06	0.06	0.28	0.28	-0.7	0.3	0	0.58	0.58	0.812	0.812
	-0.6	0.33	0	0.671	0.671	0.848	0.848	-0.07	0.4	0	0.49	-0.07	0.55	0.382
	-0.4	0.4	0	0.698	0.698	0.89	0.89	-0.03	0.23	0	0.94	-0.05	0.668	-0.14
	-0.5	0.433	0	0.69	0.69	0.866	0.866	-0.07	0.33	0	0.748	-0.11	0.49	0.018
	-0.7	0.27	0	0.527	0.527	0.806	0.806	-0.1	0.433	0	0.46	0.23	0.74	0.712
	-0.8	0.2	0	0.27	0.27	0.53	0.53	-0.23	0.47	0	0.523	0.476	0.73	0.73
MhCH	-0.8	0.2	0	0.258	0.258	0.29	0.29	0.267	0.67	0	0.44	-0.19	0.747	0.558
	-0.8	0.17	0	0.257	0.257	0.286	0.286	0.33	0.7	0	0.421	-0.27	0.69	0.42
	-0.6	0.63	0	0.482	0.482	0.519	0.519	0.133	0.37	0	0.731	-0.24	0.421	-0.36
	-0.3	1.03	0	0.61	0.61	0.68	0.68	0.067	0.233	0	0.951	-0.05	0.762	-0.22
	-1.0	0.067	0	0.002	0.002	0.008	0.008	-0.83	0.133	0	0.181	0.181	0.234	0.234
	-0.8	0.3	0	0.28	0.28	0.32	0.32	0.167	0.67	0	0.459	-0.10	0.72	0.54
	-0.6	0.6	0	0.481	0.481	0.507	0.507	0.133	0.33	0	0.747	-0.23	0.43	-0.38
	-0.7	0.43	0	0.392	0.392	0.426	0.426	0.167	0.48	0	0.543	-0.32	0.5	0.02
	-0.8	0.13	0	0.17	0.17	0.211	0.211	0.233	0.8	0	0.64	0.401	0.893	0.868
	-0.9	0.1	0	0.06	0.06	0.08	0.08	0.43	1.93	0	0.671	0.624	0.714	0.712

Table 5.10: Overlap for 2 inspectors and both the degrees of difficulties.

2 Inspectors		
Study Points	Degree of Difficulty of Defects	
	0.1	0.4
1	9.00E-04	0.0144
2	0.0019	0.03
3	0.0024	0.0384
4	9.00E-04	0.0144
5	0.0064	0.1024
6	0.0025	0.04

Table 5.11: Overlap for 3 inspectors and both the degrees of difficulties.

3 Inspectors		
Study Points	Degree of Difficulty of Defects	
	0.1	0.4
1	0.00581	0.08864
2	0.0066875	0.098
3	0.00716	0.10304
4	0.00381	0.05664
5	0.01376	0.18944
6	0.00725	0.104

Table 5.12: Overlap for 4 Inspectors and both the degrees of difficulties.

4 Inspectors		
Study Points	Degree of Difficulty of defects	
	0.1	0.4
1	0.013	0.172
2	0.011	0.066
3	0.026	0.311
4	0.043	0.454
5	0.001	0.009
6	0.014	0.181
7	0.025	0.313
8	0.019	0.242
9	0.009	0.119
10	0.003	0.044

5.4 Performance of Model MtCh

Under realistic conditions, model MtCh never fails to estimate, which is quite different from all the other estimators. However, model MtCh tends to underestimate the relative median error in the sense that it has a large negative bias. When overlap is low this underestimation increases in general for all types of study points. Model MtCh tends to give decision accuracy better than the other models. These results are consistent with the findings of previous studies (Emam and Laitenberger, 2001). We present the median relative error and decision accuracy for the model MtCh for 2, 3 and 4 inspectors in Figures 5.1 to 5.3. The boxplots showing the med(RE) for 2,3 and 4 inspectors for defect population of 10, 20 and 30 defects for both the degrees of difficulty are shown in Fig. 5.1. The boxplots showing the DA for 2,3 and 4 inspectors for defect population of 10, 20 and 30 defects for 0.57 threshold and 0.7 threshold for both the degrees of difficulty are shown in figures 5.2 to 5.3 respectively.

As mentioned earlier both decision accuracy and med(RE) improves as the number of inspectors increase, and also when the defect population increases. As expected, the variation in the results increases with the decrease in defect population.

Fig. 5.1: Box plots showing Med(RE) for 2, 3 and 4 inspectors for defect population of 10, 20 and 30 for both the degrees of difficulty .

Fig. 5.2: Box plots showing DA for 2, 3 and 4 inspectors for defect population of 10, 20 and 30 for a threshold of 0.57 and for both the degrees of difficulty .

Fig. 5.3: Box plots showing DA for 2, 3 and 4 inspectors for defect population of 10, 20 and 30 for a threshold of 0.7 and for both the degrees of difficulty.

5.5 Performance of Model MhCh

In general, this model exhibits overestimation. If the overlap is small, when the defects are difficult to detect or the inspection team consists of novices, then MhCh tends towards underestimation. Like model MtCh, models MhCh estimated all the 1000 simulations for all the study points. DA and RDA for 0.1 degree of difficulty for all the inspectors is extremely low, but improves significantly with less difficult defects and also when the team consists of experts. The increase in DA and RDA is also observed with the increase in the defect population. When the overlap is high the performance of MhCh is comparable with MtCh but with very low degree of difficulty i.e., 0.1, the overlap value is less, then MtCh outperforms all the other models.

5.6 Discussion

Given the small number of difficult defects, the CR models fail to estimate the population of such defects. We believe that it is mainly due to the effects of overlap of defects being detected by various inspectors. However, we notice fewer failures when the number of inspector is increased, as one may expect. In the case of mixed type of defects, the failure rate is small since even though the difficult defects remain undetected, it is the number of easy defects that allow the models to estimate the population. As mentioned earlier, we are more interested in the estimation of population of difficult defects and hence the decision to re-inspect the software. Among the models tried, model MtCh consistently gives better results than the other models, confirming the results found earlier by Emam and Laitenberger (2001).

So far, model MtCh has been observed to estimate better than the rest of the models. This is supported by the Figures showing the median relative error of the model with 4 inspectors and 10 and 30 difficult defects. We have two different types of defects, difficult and moderately difficult. The difficult defects tend to have larger bias (farther away from zero) than moderately difficult defects. This can be understood from the fact that the overlap parameters for the most difficult defects is low and hence leading to larger bias.

As we pointed out, the most important factor in our study has been the overlap parameter. The larger the overlap, i.e., chance of the defect to be detected by more than one inspector is more, the better is the estimate of defect population. Therefore, with a smaller number of inspectors and considering only the difficult defects, a number of models fail to estimate the defect population. With larger number of failures the other parameters of the simulations such as median relative error, inter-quartile range, and decision accuracy are rather poorly determined and hence unreliable. In order to improve these parameters, obviously we have to increase the overlap of defects found by the inspectors. This can be done in two ways: by increasing the number of inspectors along with the increase in their defect detection ability and by increasing the number of defects. For high reliability system, the number of difficult defects will be minimal. While considering the overlap of defects, it is necessary to consider the abilities of the inspectors. As one expects, having experts in the team helps in estimating the number of defects more accurately and hence decide the need for re-inspection of the software.

Results 5 and 6 given in Section 5.1, can be explained by considering the confusion matrix given in Table 4.1, where m_{11} is the number of times the unique defects (D) and the estimated defects ($\hat{N}$) are close to the actual defects (N), m_{12} represents the cases when D and $\hat{N}$ are lower than N . m_{21} represents the cases of overestimation and m_{22} sums up the cases where D is extremely low compared to the estimated number $\hat{N}$ as well as the actual number N which results in the cases of high underestimation. Therefore, for very difficult defects (0.1 degree of difficulty) DA is similar to RDA. This implies that the defect estimation is grossly underestimated, the effect of which reflects on the med (RE). In this case med (RE) shows large negative bias. The large negative bias is due to the fact that DA in such cases is determined mainly by m_{22} parameter. The scatter of DA in the case of large negative bias or equivalently, in the case where DA is entirely determined by m_{22} , is low since D is low compared to $\hat{N}$ and N . When it becomes easier to find the defects (degree of difficulty 0.4) then the value of D is closer to $\hat{N}$ and D has a large range of values, which results in increased DA and hence a larger dispersion is observed in relative error points.

5.7 Summary of The Results

Capture-recapture models have been proposed as a means for controlling the effectiveness of software inspections. In this Chapter we showed the effect of objective DCET on a smaller number of difficult defects. The model that we found most effectively detecting the faults is MtCh. Compared to other models; MtCh and MhCh

did not fail to provide an estimate under any of the conditions we studied. At 0.4 degree of difficulty, the results of MtCh and MhCh are comparable but as the defects become more difficult MtCh outperforms all the other models, and therefore is a reasonable choice. Even though the decision accuracy for MtCh is better than the other models, its accuracy is still not very satisfactory for potential usage. Previous results indicate that combining the estimates with the other variables can improve decision accuracy (Bernard *et al.* 2003).

Chapter 6

Bayesian Approach for Controlling Software Inspections

The goal of this Chapter is to discuss the subjective DCET as applied to realistic conditions. As mentioned earlier in Chapter 1, subjective estimates depend on the knowledge and capability of the individual inspector, who inspects the object carefully and reports the defects. The basic concept behind the subjective estimates is to ask inspectors after an inspection to estimate the percentage of defects in a document they believe they have actually found (Emam *et al.* 1999). Combining this information with a Bayesian DCET, one can estimate the total number of defects in a document. In many cases of population studies, prior information is available about the population size. We have incorporated the prior information using a Beta family and derived Bayesian estimators for the population size.

6.1 The Use of Subjective Estimates in Software Engineering Context

The subjective DCET, as used in this thesis, uses the prior knowledge of the most experienced inspector involved in the inspection process. The prior information or the subjective estimate is based on an individual inspector's perception of the percentage of defects in a document that s/he has found. This estimate is produced after reading the

document and logging the defects. For example, suppose an inspector finds 15 defects and s/he estimates from prior experience that 75% of the defects have been found, then it follows that the total number defects in the document is 20. This subjective estimate is affected by many different factors such as the particular reading technique used by the inspectors (Laitenberger *et al.* 1999), the degree of difficulty of the defects as well as the experience of the inspectors.

A number of authors have carried out research on subjective estimation techniques. Biffl (2001) compared the performance of objective and subjective defect content estimation techniques for the estimation of major defects in a software requirements document. The findings of the study showed that for major defects the best subjective estimation models performed comparable to the best objective estimation models, but for inspections with low defect detection effectiveness, the best subjective estimation models were more accurate than the best objective estimation models. In another study, Emam *et al.* (1999) investigated the use of subjective estimates of effectiveness by the inspectors for making the reinspection decision. They performed a study with 30 professional software engineers and found that the reinspection decision based on their subjective estimates of defect content is consistently more accurate than the default decision of never reinspecting. Furthermore, cost estimation methods based on substantial subjective information have been shown to perform impressively well (Briand *et al.* 1998b). The encouraging results on the performance of the subjective estimates of inspection effectiveness with code documents (Selby 1985 mentioned in

Emam *et al.* 1999) further assert that the subjective estimates can be quite accurate. The findings of the above authors provided a good basis for us to carry our research using subjective DCET for taking a reinspection decision under a realistic scenario.

6.2 A Bayesian Capture-Recapture Model

We follow the Bayesian model as described by Ananda (1997) to estimate the population of mountain sheep. In software engineering context, the defects correspond to the animals and each trapping corresponds to an independent inspection done by an inspector. A Bayesian model allows the incorporation of knowledge from a prior study (prior inspections in the software review context) directly into the statistical analysis. In the previous CR models the likelihood function was used to estimate the total population size of defects. In Bayesian approach, likelihood function is modified by a posterior distribution. The posterior distribution is given by

$$\text{posterior distribution} \propto \text{prior distribution} \times \text{likelihood function}$$

The size of the population of defects is then estimated using this modified probability distribution function. The uncertainties about all unknown parameters in the model are modeled by specifying their respective prior probability distribution. These prior probability distributions about the unknown parameters are updated to their posterior probability distributions in view of the observed data. All statistical inferences about the parameters of interest are then drawn from their posterior distributions.

Let N be the total number of defects in the software, n_0 be the number of defects found by the most experienced inspector from the inspection team, s be the number of inspectors, n_i ($i=1, \dots, s-1$) be the number of defects found by each inspector and m_i ($i=1, \dots, s-1$) are the number of defects found by each inspector that overlapped with the most experienced inspector (these are the subset of n_0 defects). These sample sizes n_i s are assumed to be coming from a density $\phi_\lambda(n)$, where λ is an unknown parameter. The distribution of m_i , given n_i follows the hypergeometric distribution

$$f(m_i | n_i) = \frac{\binom{n_0}{m_i} \binom{N-n_0}{n_i-m_i}}{\binom{N}{n_i}}, m_i=0,1,\dots,n_i \quad (6.1)$$

When n_i values are small and n_0 is large, this distribution can be approximated by the binomial distribution with parameters n_0 and $p = n_0 / N$,

$$f(m_i | n_i) = \binom{n_i}{m_i} p^{m_i} (1-p)^{n_i-m_i} \quad m_i=0,1,\dots,n_i \quad (6.2)$$

As the second stage samples are independent, the likelihood function denoted by $L(p, \lambda)$, can be written as

$$L(p, \lambda) = \prod_{i=1}^{s-1} \binom{n_i}{m_i} p^{m_i} (1-p)^{n_i-m_i} \phi_\lambda(n) \quad (6.3)$$

and the maximum likelihood estimate of population size N is given by

$$\hat{N} = n_0 \left(\sum n_i \right) / \left(\sum m_i \right) \quad (6.4)$$

which is essentially the Lincoln-Peterson estimator.

To apply Bayesian methods, suppose that the prior density of p is a Beta density with parameters a and b ,

$$f(p) = \frac{\Gamma(a+b)}{\Gamma(a)\Gamma(b)} p^{a-1} (1-p)^{b-1}, \quad 0 < p < 1 \quad (6.5)$$

where $\Gamma(t) = (t-1)!$

and the prior density of λ is $\psi(\lambda)$. Here all the prior information regarding the population size is incorporated into the inference process using this beta density and these parameters must be evaluated using the prior information. Then the posterior density of p and λ is proportional to

$$\pi(p, \lambda | \text{data}) \propto p^{a-1} (1-p)^{b-1} \psi(\lambda) \left(\prod_{i=1}^{s-1} \binom{n_i}{m_i} p^{m_i} \phi_\lambda(n_i) \right) \quad (6.6)$$

Therefore, the posterior density of p given data is

$$\begin{aligned} \pi(p | \text{data}) = & \Gamma\left(\sum_{i=1}^{s-1} n_i + a + b\right) \left[\Gamma\left(\sum_{i=1}^{s-1} m_i + a\right) \Gamma\left(\sum_{i=1}^{s-1} n_i - \sum_{i=1}^{s-1} m_i + b\right) \right]^{-1} \\ & \times \\ & \left(\sum_{i=1}^{s-1} m_i + a - 1 \sum_{(1-p)^{i=1}}^{s-1} n_i - \sum_{i=1}^{s-1} m_i + b - 1 \right) \end{aligned} \quad (6.7)$$

which is a Beta density with parameters $\sum_{i=1}^{s-1} m_i + a$ and $\sum_{i=1}^{s-1} n_i - \sum_{i=1}^{s-1} m_i + b$. Assuming the quadratic loss, the Bayesian estimate of the population size is the expected value of n_0/p with respect to the posterior distribution. Therefore, the Bayesian estimate of the population size N is given by

$$\hat{N}_{ab} = n_0 \left(a + b + \sum_{i=1}^{s-1} n_i - 1 \right) / \left(a + \sum_{i=1}^{s-1} m_i - 1 \right) \quad (6.8)$$

In case of no prior information for the estimation, a uniform prior on p corresponding to the choice $(a=1, b=1)$ or a generalized prior density on p with a choice such as $(a=1, b=0)$ can be taken. With the second choice, the generalized Bayesian estimate of the population size will be the same as the maximum likelihood estimate.

The approach we have taken for our research involves the estimation of the prior parameters a and b using the available prior data. With the prior data, given prior mean $E(p)$ and standard deviation σ_p , the prior parameters a and b were evaluated by using the formula

$$E(p) = a / (a + b), \text{ and } \sigma_p^2 = ab(a + b + 1)^{-1}(a+b)^{-2} \quad (6.9)$$

6.3 Research Method

We performed extensive Monte Carlo simulations with the population size of 10, 20 and 30 difficult defects for the evaluation of the Bayesian model. The study points for the simulation were built using the same set of variables that were used for the objective DCETs (Section 4.2). Additionally, the inspection effectiveness of each team was studied under two new parameters. For each inspection team, we considered five values of standard deviation, σ_p , of the prior. For each value of standard deviation we considered seven values of prior mean, $E(p)$, as explained in the next section, i.e., we studied the efficiency of inspection effectiveness for each value of standard

deviation. For the evaluation of the model, we used med (RE), IQR, number of failures for the model, decision accuracy at two different thresholds (0.57 and 0.7) and RDA for both the thresholds as were used for the evaluation of objective DCETs (Section 4.3).

6.3.1 Selection of Bayesian parameters

The prior distribution is critical to the Bayesian method. This distribution is described by a and b parameters which are determined by the prior mean $E(p)$ and the standard deviation σ_p , see Eqn. 6.9. In our simulations we select σ_p and $E(p)$ in the following manner. Since we do not have any knowledge of the prior, we try to determine these parameters from the data matrix described in Chapter 3. We define the mean as n_0/N . We allow our estimated number to deviate as much as upto $\pm 30\%$ from the actual defect population. Thus, the prior mean can now be written as

$$E(p) = \frac{n_0}{N - Er \times N} \quad (6.10)$$

where, offset from the actual mean, $Er = 0, \pm 0.1, \pm 0.2, \pm 0.3$.

We chose values of 0.025, 0.05, 0.075, 0.1 and 0.2 for standard deviation. For each value of the standard deviation, we had seven values of $E(p)$ as given above.

6.4 Results

As mentioned earlier, we have four main variables in our simulations: number of inspectors and their abilities, number of defects and their degree of difficulty. The detail results are given in Appendix A. We present a summary of the results in this Chapter.

We observed that the DA decreased as the standard deviation of the prior increased. We also noted that within a given standard deviation, the DA did not seem to change significantly. It was also observed that the failure rate in each simulation increased when the abilities of the inspectors decreased and also when the defects became more difficult to find. These three general trends were observed throughout the entire simulations.

1. We first considered changing the number of inspectors while keeping all the other parameters fixed. The results for 10, 20 and 30 defects and the degree of difficulty of 0.1 and standard deviation of 0.025 are shown in Tables 6.1, 6.2 and 6.3. The DA for both the thresholds (0.57 and 0.7) increased as the number of inspector increased. Here we chose the inspector abilities as 0.5 for all the inspectors, which means a moderate ability. The DA of 10 defects increased from 0.62 to 0.87 for a threshold of 0.7 as the number of inspectors increased from 2 to 4. There was a similar increase in DA for a threshold of 0.57. This trend was observed for 20 and 30 defects as well.
2. We obtained the second set of results by varying the ability of the inspectors. In Table 6.4, we show the DA for a case of 4 inspectors and 20 defects. The two groups of inspectors have been chosen to illustrate the extreme variations i.e. a team of 4 experts and a team of 4 novices. The DA for the team of experts is significantly more than the DA of a team of novices, for both the thresholds used in our simulations.

3. Next, we varied the number of defects while not changing the number and the ability of the inspectors. Tables 6.5, 6.6 and 6.7 show the results of DA for 2, 3 and 4 inspectors respectively. The DA increased with increasing number of defects for a given number of inspectors. For example, the DA increases from 0.63 to 0.96 for a threshold of 0.7. Similar increase in DA was observed for 0.57 threshold as well. The same trend was observed for all the inspection teams.
4. The most important result is that the DA of Bayesian CR model is remarkably high than the traditional CR models under realistic conditions (Chapter 5).

Table 6.1: 10 Defects of 0.1 degree of difficulty and standard deviation of 0.025.

Er	2 Inspectors		3 Inspectors		4 Inspectors	
	DA(.7)	DA(.57)	DA(.7)	DA(.57)	DA(.7)	DA(.57)
0.3	0.62	0.62	0.76	0.73	0.87	0.78
0.2	0.66	0.66	0.79	0.78	0.86	0.84
0.1	0.64	0.64	0.79	0.79	0.86	0.86
0	0.65	0.65	0.78	0.78	0.87	0.87
-0.1	0.60	0.60	0.79	0.79	0.87	0.87
-0.2	0.64	0.64	0.81	0.81	0.88	0.87
-0.3	0.66	0.66	0.79	0.79	0.86	0.86

Table 6.2: 20 Defects of 0.1 degree of difficulty and standard deviation 0.025. (Inspection team consists of moderate abilities i.e., 0.5)

Er	2 Inspectors		3 Inspectors		4 Inspectors	
	DA(.7)	DA(.57)	DA(.7)	DA(.57)	DA(.7)	DA(.57)
0.3	0.88	0.88	0.94	0.94	0.98	0.96
0.2	0.86	0.86	0.95	0.95	0.98	0.98
0.1	0.89	0.89	0.96	0.96	0.99	0.99
0	0.88	0.88	0.95	0.95	0.99	0.99
-0.1	0.87	0.87	0.95	0.95	0.99	0.99
-0.2	0.86	0.86	0.96	0.96	0.99	0.99
-0.3	0.87	0.87	0.95	0.95	0.98	0.98

Table 6.3: 30 Defects of 0.1 degree of difficulty and standard deviation of 0.025. (Inspection team consists of moderate abilities i.e., 0.5)

Er	2 Inspectors		3 Inspectors		4 Inspectors	
	DA(.7)	DA(.57)	DA(.7)	DA(.57)	DA(.7)	DA(.57)
0.3	0.95	0.95	0.99	0.99	0.99	0.99
0.2	0.94	0.94	0.99	0.99	0.99	0.99
0.1	0.94	0.94	0.99	0.99	0.99	0.99
0	0.94	0.94	0.99	0.99	1.0	1.0
-0.1	0.96	0.96	1.0	1.0	0.99	0.99
-0.2	0.96	0.96	0.99	0.99	0.99	0.99
-0.3	0.96	0.96	0.99	0.99	0.99	0.99

Table 6.4: DA for a team of experts and a team of novices. The table shows 20 defects of 0.1 degree of difficulty and standard deviation of 0.025.

Er	4 Inspectors abilities (experts) (0.9,0.9,0.9,0.9)		4 Inspectors abilities (novices) (0.1, 0.1, 0.1, 0.1)	
	DA(.7)	DA(.57)	DA(.7)	DA(.57)
0.3	0.93	0.74	0.55	0.55
0.2	0.99	0.94	0.55	0.55
0.1	1.0	0.98	0.53	0.53
0	1.0	1.0	0.56	0.56
-0.1	1.0	0.99	0.57	0.57
-0.2	1.0	0.99	0.58	0.58
-0.3	1.0	0.99	0.53	0.53

Table 6.5: DA for 2 Inspectors with 0.1 degree of difficulty and standard deviation of 0.025. (Inspector abilities are 0.25, 0.75).

Er	10 defects		20 defects		30 defects	
	DA(.7)	DA(.57)	DA(.7)	DA(.57)	DA(.7)	DA(.57)
0.3	0.63	0.62	0.86	0.86	0.96	0.96
0.2	0.64	0.63	0.88	0.88	0.96	0.96
0.1	0.65	0.65	0.86	0.86	0.96	0.96
0	0.64	0.64	0.85	0.85	0.96	0.96
-0.1	0.64	0.64	0.87	0.87	0.95	0.95
-0.2	0.62	0.62	0.88	0.88	0.96	0.96
-0.3	0.63	0.63	0.86	0.86	0.95	0.95

Table 6.6: DA for 3 Inspectors with 0.1 degree of difficulty and standard deviation of 0.025. (Inspector abilities are 0.25, 0.50, and 0.75)

Er	10 defects		20 defects		30 defects	
	DA(.7)	DA(.57)	DA(.7)	DA(.57)	DA(.7)	DA(.57)
0.3	0.78	0.76	0.96	0.95	0.99	0.99
0.2	0.78	0.78	0.96	0.96	0.99	0.99
0.1	0.79	0.79	0.96	0.96	0.99	0.99
0	0.79	0.79	0.96	0.96	0.99	0.99
-0.1	0.80	0.80	0.96	0.96	1.0	1.0
-0.2	0.78	0.78	0.96	0.96	0.99	0.99
-0.3	0.77	0.77	0.95	0.95	0.99	0.99

Table 6.7: DA for 4 Inspectors with 0.1 degree of difficulty and standard deviation of 0.025. (Inspector abilities are 0.1, 0.4, 0.6 and 0.9).

Er	10 defects		20 defects		30 defects	
	DA(.7)	DA(.57)	DA(.7)	DA(.57)	DA(.7)	DA(.57)
0.3	0.87	0.80	0.99	0.96	1.0	1.0
0.2	0.89	0.87	0.98	0.98	1.0	1.0
0.1	0.87	0.87	0.98	0.98	1.0	1.0
0	0.87	0.87	0.98	0.98	1.0	1.0
-0.1	0.86	0.85	0.99	0.99	1.0	1.0
-0.2	0.86	0.86	0.99	0.99	1.0	1.0
-0.3	0.86	0.86	0.99	0.99	1.0	1.0

6.5 Discussion

We can understand the results and the behaviour of the Bayesian model in terms of the data matrix and the prior. The product of the ability of the inspectors and the number of defects and their degree of difficulty determine the sparseness of the data matrix. The estimated population depends on the values of n_0 , mI , nI and a and b parameters of the beta distribution (see Eqn. 6.8). The parameter mI determines the overlap of defects found by more than one inspector. It is clear from Eqn. 6.3 that if $mI=0$ (happens more frequently when data matrix is sparse), the estimated population depends more on a and b values, and hence the prior mean $E(p)$ and standard deviation σ_p . On the other hand when the data matrix is filled (happens when the ability of the inspectors is high and the defects are easier to find, as well as the defects being more in number) the estimated population depends more on overlap parameter mI and nI . Therefore, in the case of a sparse data matrix, the estimated population depends entirely on the prior mean and standard deviation, hence it is very important to have an accurate value of the prior.

This can be explained by taking the example of worst-case scenario when the data matrix is extremely sparse. This is the case with 2 inspectors of low capabilities and 10 defects of 0.1 degree of difficulty. Here, with standard deviation of 0.025 and all its seven values of $E(p)$, the DA remains almost constant, but when the data matrix gets filled up the DA no longer remains entirely dependent on the prior mean as can be seen with 4 inspectors of moderate abilities and 30 defects of 0.4 degree of difficulty. In this case for $\sigma_p=0.025$, the DA reaches its peak at correct value of $E(p)$ (i.e., with zero relative error) and drops significantly as the prior is off by $\pm 30\%$. The failure to estimate the population occurs when the data matrix is completely empty. This happens when the team consists of novices and the degree of difficulty of the defects is high.

Given the above explanation of the data matrix, we can easily understand all the results of the Bayesian model. The data matrix is sparse for low number of defects and gets filled with large number of defects as well as larger number of inspectors, thereby increasing the DA. For example, there is a 20% gain in the DA as the defect population increases from 10 to 20 defects, and a gain of 10% is observed from 20 to 30 defects for 2 inspectors and with 0.1 degree of difficulty (see Tables 6.1 through 6.3). Also, around 40% gain in DA is observed as the inspector abilities increase from a team of novices to a team of experts. Basically, for novices the matrix will be sparse and their subjective estimates will be wrong in the worst-case scenario.

Chapter 7

Comparison Between MtCh and Bayesian Models

In Chapter 5, while researching on objective DCET we identified a specific CR model, model MtCh, as the most appropriate for inspections (Briand *et al.* 2000, Emam and Laitenberger 2001). This Chapter compares the Bayesian results with the model MtCh obtained earlier.

7.1 DA of MtCh and Bayesian Model

Figures 7.1 and 7.2 show the DA (0.7 and 0.57 thresholds respectively) as a function of E_r for 2,3 and 4 inspectors for both Bayesian and MtCh models for 10 defects and 0.1 degree of difficulty. Figures 7.3 and 7.4 show the DA (0.7 and 0.57 thresholds respectively) for both Bayesian and MtCh models for 20 defects and 0.1 degree of difficulty. Figures 7.5 and 7.6 show the DA (0.7 and 0.57 thresholds respectively) as a function of E_r for 2,3 and 4 inspectors for both Bayesian and MtCh models for 10 defects and 0.4 degree of difficulty. Figures 7.7 and 7.8 show the DA (0.7 and 0.57 thresholds respectively) for both Bayesian and MtCh models for 20 defects and 0.4 degree of difficulty. In the CR study (Chapter 5) we used the median relative error (med(RE)) as a parameter to distinguish between various models. In Bayesian context,

this is not a useful parameter since we essentially use this as an input parameter as Er . Our discussion on the objective and the subjective DCETs, therefore, uses DA as a comparison parameter between the two.

Fig. 7.1: Comparison of DA of 0.7 for Bayesian and MtCh for 10 defects and 0.1 degree of difficulty. Inspection team consists of moderate abilities i.e., 0.5.

Fig. 7.2: Comparison of DA of 0.57 for Bayesian and MtCh for 10 defects and 0.1 degree of difficulty. Inspection team consists of moderate abilities i.e., 0.5.

Fig. 7.3: Comparison of DA of 0.7 for Bayesian and MtCh for 20 defects and 0.1 degree of difficulty. Inspection team consists of moderate abilities i.e., 0.5.

Fig. 7.4: Comparison of DA of 0.57 for Bayesian and MtCh for 20 defects and 0.1 degree of difficulty. Inspection team consists of moderate abilities i.e., 0.5.

Fig. 7.5: Comparison of DA of 0.7 for Bayesian and MtCh for 10 defects and 0.4 degree of difficulty. Inspection team consists of moderate abilities i.e., 0.5.

Fig. 7.6: Comparison of DA of 0.57 for Bayesian and MtCh for 10 defects and 0.4 degree of difficulty. Inspection team consists of moderate abilities i.e., 0.5.

Fig. 7.7: Comparison of DA of 0.7 for Bayesian and MtCh for 20 defects and 0.4 degree of difficulty. Inspection team consists of moderate abilities i.e., 0.5.

Fig. 7.8: Comparison of DA of 0.57 for Bayesian and MtCh for 20 defects and 0.4 degree of difficulty. Inspection team consists of moderate abilities i.e., 0.5.

Fig. 7.9: Distribution of data points for 4 inspectors, 10 defects, with 0.025 standard deviation and $Er = 0$ with 0.1 degree of difficulty. Relative Error ranges from -1.0 to $+0.1$.

7.1.1 Distribution of Relative Error

In Figures 7.1 through 7.4, with 0.1 degree of difficulty i.e., extremely difficult defects, the DA for all the inspectors for Bayesian model remain unchanged as a function of Er . In Figures 7.5 through 7.8, with 0.4 degree of difficulty, the DA of Bayesian model for all the inspectors for both the thresholds, reaches its peak (almost approaches 1) at correct value of $E(p)$ (i.e., when Er parameter is zero). In these figures, for 3 and 4 inspectors, the DA value drops significantly as the value of $E(p)$ is off by $\pm 30\%$, but for 2 inspectors, this drop is not so prominent. The behaviour of the Figures 7.1 through 7.4 can be understood from the Figure 7.9 and of Figures 7.5 through 7.8 from Figure 7.10.

Fig. 7.10: Distribution of data points for 4 inspectors, 10 defects, with 0.025 standard deviation and $Er = 0$ with 0.4 degree of difficulty. Note that in contrast to the Fig 7i, in this figure Relative Error ranges from 0 to +0.1.

Figures 7.9 and 7.10 show the distribution of relative error $(\frac{\hat{N} - N}{N})$ from 1000 simulations for 4 inspectors, 10 defects, standard deviation of 0.025 and at correct value of $E(p)$ for 0.1 and 0.4 degree of difficulty respectively. The distribution in the Figure 7.9 has a large width than that in Figure 7.10. In Figure 7.9, when the defects are very difficult to detect, the distribution is very wide, where 500 points lie between 0 and 0.1 (i.e., 10% off the actual number of defects), less than 400 points are between -0.1 (i.e., -10% off) and 0, and little over 100 points are off the actual defects by -100%. In Figure 7.10, we observe that most of the 1000 data points lie in the range

between 0 and 0.01, and very few data points lie around 10% off the actual defect range. Also, the IQR (see Chapter 4) for 0.1 degree of difficulty for the same set of values is 0.1, whereas, the IQR for 0.4 degree of difficulty is 0, which means that the dispersion of relative error points for extremely difficult defects is larger than that of moderate defects.

Fig. 7.11: Width of likelihood function is large in case of sparse data matrix.

As mentioned earlier in Chapter 6, the behavior of all the figures or the Bayesian model can be understood in the context of the sparseness of the data matrix. In the absence of sufficient defect data (when the data matrix is sparse due to very difficult defects, 0.1 degree of difficulty), the likelihood function has a larger width or is rather poorly defined (see Figure 7.11); therefore, the posterior distribution is determined by the prior distribution. The DA, which remains high in all these cases (Figures 7.1 through 7.4), is independent of E_r , i.e. over a large variation of the prior mean values. Hence, given the high value of DA does not necessarily suggest that one has arrived at a correct decision. In these cases specifying an accurate prior mean is rather crucial to obtaining a correct decision.

Fig. 7.12: Width of the likelihood function gets narrower when the data matrix gets filled up.

Whereas, when the data matrix is relatively full, the distribution of $\hat{N}$ and hence the likelihood function gets better defined (see Figure 7.12), i.e., its width gets narrower (also see Figures 7.9 and 7.10). In such cases, the posterior function depends mainly on the likelihood function or rather on the width of likelihood function. When the likelihood function is narrow, the DA can drop sharply if the prior mean deviates slightly from the peak of the likelihood function. This explains the results of 3 and 4 inspectors in Figures 7.5 through 7.8, where, when the prior is off by ± 20 or ± 30 % sharp decline in DA values are observed, but for 2 inspectors, since the data matrix is rather sparse even with 0.4 degree of difficulty, this decline is not so prominent.

Under all the circumstances the DA values of Bayesian are remarkably higher than that of MtCh. Since Er parameter was fixed for MtCh, we have the same value of DA plotted for all values of Er. Though we have shown the graphs for $\sigma_p = 0.025$, the

result is similar for other values of σ_p . The DA, even for 4-inspector MtCh is much less than 2, 3-inspector Bayesian.

For low defect detection effectiveness (DDE), i.e., when less number of defects are found, it is generally hard to estimate as there is not much defect data to build on. In such cases, objective models fail to provide accurate estimations as they rely on the set of defects found and the number of inspectors who found a defect, i.e., the overlap parameter. Whereas, in case of subjective models, due to low DDE, inexperienced inspectors would not be able to provide accurate priors, hence the estimations would be way off the mark. However, even if the number of defects found is small, but the DDE of the inspection team is high, then the DA of subjective model is significantly high. In general, one should avoid using subjective estimates (Bayesian models) when the inspectors are novices.

Chapter 8

Conclusion and Future Work

In this thesis we set out to evaluate the performance of six common capture-recapture models for making the reinspection decision under a realistic scenario. We extended the work of Emam and Laitenberger (2001) but used only one type of defect i.e., defects that are difficult to find. The population of these defects is expected to be low in any software artefact. Thus, our objective was to evaluate the CR models for a small population of difficult defects. Extensive Monte Carlo simulations were carried out for 2, 3 and 4 inspectors and defect population of 10, 20 and 30 and with 0.1 and 0.4 degrees of difficulty. We find that the models M0, MtMLE, MhJE and MthCh failed to estimate the population under the mentioned conditions. The models MtCh and MhCh estimated all the 1000 simulations and their results were comparable for high overlap of defects. Whereas, with very low degree of difficulty, i.e. 0.1, the overlap value is less, then MtCh outperformed all the other models. Therefore, under realistic conditions MtCh is the preferred model. However, the decision accuracy is no better than flipping a coin.

Due to unsatisfactory results of the capture-recapture models, i.e. an objective DCET, we next attempted using subjective DCET for the estimation of the population of defects

in the software artefact in order to take the reinspection decision. There is evidence that subjective DCET are known to work quite efficiently (Selby 2001 mentioned in Emam *et al.* 1999, Biffl 2001). In particular we used the Bayesian model given by Ananda (1997). Simulations were performed varying the number of inspectors (2, 3 and 4), defect population (10, 20 and 30) and degree of difficulty of defects (0.1 i.e. difficult, and 0.4 moderately difficult). We find that the decision accuracy improves with increase in the number of inspectors, and number of defects and also when the defects become easier to find. We can understand the results and the behaviour of the Bayesian model in the context of the sparseness of the data matrix and the prior distribution. In the case of a sparse data matrix, the estimated population depends entirely on the prior mean and the standard deviation, hence in such a case it is very important to have an accurate value of the prior distribution. Whereas, when the data matrix is not sparse, the estimation of the population of defects depends more on the likelihood function rather than on the prior distribution. Therefore, with a comparatively full data matrix, the likelihood function gets better defined. As the prior moves away from the correct value, decision accuracy drops significantly. Since the reliability of the decision accuracy depends on the correctness of the prior distribution, particularly in the case of a sparse data matrix, therefore with the Bayesian model, it is rather essential to have a correct prior distribution.

Comparing the objective DCET with the subjective DCET, it is observed that under all the circumstances the decision accuracy values of the Bayesian model are remarkably

higher than that of MtCh. The decision accuracy, even for 4-inspector MtCh is much less than 2, 3-inspector Bayesian. In the case of subjective DCET, we have the advantage of additional parameters, i.e. the prior mean and its standard deviation that play an important role in improving the decision accuracy.

8.1 Discussion and Limitations

Table 8.1: Comparison of DA values of 0.7 threshold using Prior without beta distribution and Prior with beta distribution for 2 inspectors and 10 defects for 0.1 degree of difficulty.

2 inspectors, 10 defects, 0.1degree of difficulty					
Inspector Abilities			Prior without Beta dist.	Prior with Beta dist. (sd of 0.025)	Prior with Beta dist. (sd of 0.2)
	Er	MRE	DA(.7)	DA(.7)	DA(.7)
(0.25,0.75)	0.3	-0.3	0.999	0.63	0.626
	0	0	1	0.64	0.202
	-0.3	0.3	1	0.62	0.179
(0.4,0.6)	0.3	-0.3	1	0.61	0.637
	0	0	1	0.64	0.157
	-0.3	0.3	1	0.63	0.177
(0.3,0.3)	0.3	-0.3	0.999	0.45	0.433
	0	0	1	0.456	0.07
	-0.3	0.3	1	0.428	0.067
(0.8,0.8)	0.3	-0.3	0.989	0.79	0.798
	0	0	1	0.792	0.334
	-0.3	0.3	1	0.794	0.347
(0.5,0.5)	0.3	-0.3	1	0.624	0.669
	0	0	1	0.645	0.163
	-0.3	0.3	1	0.664	0.191

Table 8.2: Comparison of DA values of 0.7 threshold using Prior without beta distribution and Prior with beta distribution for 4 inspectors and 10 defects for 0.4 degree of difficulty.

4 inspectors, 10 defects 0.4 degree of difficulty					
Inspector Abilities			Prior without Beta dist.	Prior with Beta dist. (sd of 0.025)	Prior with Beta dist. (sd of 0.2)
	Er	MRE	DA(.7)	DA(.7)	DA(.7)
(0.1,0.1,0.9,0.9)	0.3	-0.3	0.584	0.569	0.659
	0	0	1	1	0.687
	-0.3	0.3	0.557	0.539	0.16
(0.5,0.5,0.9,0.9)	0.3	-0.3	0.776	0.746	0.689
	0	0	1	1	0.591
	-0.3	0.3	0.309	0.309	0.486
(0.1,0.1,0.1,0.1)	0.3	-0.3	0.994	0.792	0.804
	0	0	1	0.782	0.326
	-0.3	0.3	1	0.811	0.3
(0.5,0.5,0.5,0.9)	0.3	-0.3	0.656	0.658	0.71
	0	0	1	0.999	0.69
	-0.3	0.3	0.46	0.449	0.663
(0.1,0.5,0.5,0.5)	0.3	-0.3	0.556	0.544	0.8
	0	0	1	0.999	0.81
	-0.3	0.3	0.803	0.823	0.78

In the previous chapter, the DA values of prior with Beta distribution were compared with the traditional CR models. The results showed very high DA values of Bayesian model, almost approaching 1 as compared to the objective DCET, i.e., model MtCh. In this section we compare the DA values obtained with the above mentioned model i.e., prior with Beta distribution and prior without Beta distribution.

(a) In prior with Beta distribution, we consider two parameters: prior mean Ep and its standard deviation σ_p , Chapter 6 gives the details of selection of these two parameters.

We have simulated for different values of Ep and σ_p .

(b) In case of prior without Beta distribution, only one parameter is specified i.e., prior mean Ep which is equivalent to $\sigma_p=0$. In this case $\hat{N}=n0/Ep$, where $n0$ is the number of defects found by the most experienced inspector and Ep is the same inspector's prior mean. Then $\hat{N}$ and D (value obtained from the data matrix, see Chapter 3) were used to obtain DA values.

Tables 8.1 and 8.2 show the DA values for both types of prior with and without Beta distribution for sparse data matrix and comparatively full data matrix. In each table we compare three DA values: prior without Beta distribution i.e., $\sigma_p=0$, prior with Beta distribution for narrow σ_p of 0.025 and prior with Beta distribution for large σ_p of 0.2.

The following results were observed.

1. For sparse data matrix (Table 8.1) the DA value decreases as σ_p increases.
2. When the data matrix gets filled up (Table 8.2), the DA values for prior without Beta distribution and prior with Beta distribution for σ_p of 0.025 are essentially the same, which is expected.
3. Also, when the team consist of novices (inspector abilities of 0.1, 0.1, 0.1, 0.1), see Table 8.2, the DA value is extremely high for prior without Beta distribution in contrast to a team of experts. This can be understood by the fact that the data matrix is rather sparse in case of novices and hence the posterior distribution is

determined by the prior. In the case where there is sufficient data available, the DA is high only for $Er = 0$, but drops nearly by 50% when $Er = \pm 0.3$.

We have thus observed that using priors can give reasonable results. However, the drawback is that if Ep happens to be wrong, then the DA is unreliable even though it appears to be correct. Therefore the Bayesian models must be used with caution and it is extremely important to get the prior parameters as accurately as possible. Getting the prior distribution can be a practical problem because it can strongly deviate from the actual value due to political and sociological contributions. In spite of inherent deficiency of Bayesian method, it is a useful technique as has been shown with our simulations.

8.2 Future Work

We have been encouraged by the Bayesian results, which show a remarkable improvement over the CR models studied earlier. This is one of the many Bayesian models one can consider in the context of software inspections. Some of the models require a different sampling of the defects than our assumption of independent inspectors (i.e. each inspector examines the document independent of the others). For example, it is possible that the inspection process could be done sequentially, i.e. the defects found by the first inspector are passed onto the next inspector and so on. Thus the posterior function gets modified depending on the sampling. One can consider such Bayesian models for software inspections.

We assumed a close population of defects where the population remains constant throughout the inspection process. However, one can relax this assumption and use different CR models to estimate the population (Seber 1982). One can also consider supplementing the CR models studied in this thesis with some additional parameters such as size and complexity metrics of the software artifact.

Considering the success of the Bayesian model presented in this thesis, one can also design a tool for software inspections.

Moving away from purely Bayesian models, another avenue that is worthy of exploration is that of capture-recapture models for estimating endangered species. Such models are particularly good at dealing with a sparse data matrix, and therefore may provide additional value to making the reinspection decision.

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Appendix A

Following are the tables of Bayesian results for 2, 3 and 4 inspectors, with defect population of 10, 20 and 30, and for 0.1 and 0.4 degree of difficulty. First line of each table states the number of inspectors, number of defects and the degree of difficulty of the defects. Second line gives the inspector abilities in the inspection team. Within each inspection team, we present the results by varying the standard deviation from 0.025 to 0.2.

The full forms of the abbreviations of each column heading is given below:

SD: standard deviation, Er: see Chapter 6 for full explanation, MRE: median relative error, IQR: inter quartile range, Fail: failures, DA: decision accuracy at a given threshold, RDA: relative decision accuracy at the given threshold.

Table A2-1: 2 inspectors, 10 defects and 0.1 degree of difficulty.

2 ins/10 def/0.1 diff

(0.25,0.75)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.3	0	370	0.63	0.63	0.617	0.617
0.025	0.2	-0.2	0	365	0.635	0.635	0.634	0.634
0.025	0.1	-0.1	0	351	0.649	0.649	0.649	0.649
0.025	0	0.1	0.1	360	0.64	0.64	0.64	0.64
0.025	-0.1	0.2	0.1	363	0.637	0.637	0.636	0.635
0.025	-0.2	0.3	0.1	381	0.619	0.619	0.619	0.619
0.025	-0.3	0.5	0.2	372	0.628	0.628	0.627	0.626
0.05	0.3	-0.2	0.1	373	0.624	0.624	0.614	0.613
0.05	0.2	0	0.2	399	0.6	0.6	0.601	0.6
0.05	0.1	0.1	0.1	354	0.646	0.646	0.646	0.645
0.05	0	0.4	0.3	341	0.659	0.659	0.659	0.659
0.05	-0.1	0.6	0.4	370	0.63	0.63	0.63	0.63
0.05	-0.2	1	0.7	339	0.661	0.661	0.66	0.659
0.05	-0.3	1.4	0.9	361	0.639	0.639	0.639	0.639
0.075	0.3	0	0.2	366	0.633	0.633	0.623	0.623
0.075	0.2	0.3	0.4	369	0.631	0.631	0.631	0.631
0.075	0.1	0.9	0.9	346	0.654	0.654	0.654	0.654
0.075	0	1.8	1.6	343	0.657	0.657	0.657	0.657
0.075	-0.1	4.2	3.8	339	0.661	0.661	0.66	0.659
0.075	-0.2	22.9	22.4	352	0.648	0.648	0.648	0.648
0.075	-0.3	-10.9	11.2	342	0.658	0.658	0.658	0.658
0.1	0.3	0.7	0.8	386	0.613	0.613	0.606	0.606
0.1	0.2	2.7	2.7	375	0.625	0.625	0.625	0.625
0.1	0.1	-58.3	58.5	356	0.644	0.644	0.644	0.644
0.1	0	-4.4	4.5	341	0.659	0.659	0.659	0.659

	0.1	-0.1	-2.7	3	362	0.638	0.638	0.638	0.638
	0.1	-0.2	-2.2	2.7	378	0.622	0.622	0.622	0.622
	0.1	-0.3	-1.9	2.5	359	0.641	0.641	0.641	0.641
	0.2	0.3	-1.1	1.1	374	0.626	0.626	0.625	0.625
	0.2	0.2	-1	0.1	339	0.271	0.271	0.271	0.271
	0.2	0.1	-1	0.1	333	0.274	0.274	0.274	0.274
	0.2	0	-1	0	342	0.202	0.202	0.202	0.202
	0.2	-0.1	-1	0	366	0.192	0.192	0.192	0.192
	0.2	-0.2	-1	0.4	384	0.21	0.21	0.21	0.21
	0.2	-0.3	-1	0.3	356	0.179	0.179	0.179	0.179
(0.4,0.6)									
	0.025	0.3	-0.3	0	383	0.615	0.615	0.605	0.605
	0.025	0.2	-0.2	0	368	0.632	0.632	0.631	0.631
	0.025	0.1	-0.1	0	362	0.638	0.638	0.638	0.638
	0.025	0	0.1	0.1	351	0.649	0.649	0.649	0.649
	0.025	-0.1	0.2	0.1	354	0.646	0.646	0.646	0.646
	0.025	-0.2	0.3	0	367	0.633	0.633	0.633	0.633
	0.025	-0.3	0.5	0.2	368	0.632	0.632	0.632	0.632
	0.05	0.3	-0.2	0.1	341	0.656	0.656	0.642	0.642
	0.05	0.2	0	0.2	364	0.636	0.636	0.633	0.633
	0.05	0.1	0.1	0.1	339	0.661	0.661	0.661	0.661
	0.05	0	0.4	0.3	320	0.68	0.68	0.68	0.68
	0.05	-0.1	0.6	0.4	348	0.652	0.652	0.652	0.652
	0.05	-0.2	1	0.7	352	0.648	0.648	0.648	0.648
	0.05	-0.3	1.4	0.9	347	0.653	0.653	0.653	0.653
	0.075	0.3	0	0.2	349	0.65	0.65	0.638	0.638
	0.075	0.2	0.3	0.4	341	0.659	0.659	0.659	0.659
	0.075	0.1	0.9	0.8	361	0.639	0.639	0.639	0.639
	0.075	0	1.8	1.6	354	0.646	0.646	0.646	0.646
	0.075	-0.1	4.2	3.8	360	0.64	0.64	0.64	0.64
	0.075	-0.2	22.9	22.3	367	0.633	0.633	0.633	0.633
	0.075	-0.3	-10.9	11.2	347	0.653	0.653	0.653	0.653
	0.1	0.3	0.7	0.8	358	0.642	0.642	0.641	0.641
	0.1	0.2	2.7	2.6	377	0.623	0.623	0.622	0.622
	0.1	0.1	-58.3	58.2	374	0.626	0.626	0.626	0.626
	0.1	0	-4.4	1.1	352	0.648	0.648	0.648	0.648
	0.1	-0.1	-2.7	2.8	353	0.647	0.647	0.647	0.647
	0.1	-0.2	-2.2	2.4	325	0.675	0.675	0.675	0.675
	0.1	-0.3	-1.9	0	397	0.603	0.603	0.603	0.603
	0.2	0.3	-1.1	0.8	363	0.637	0.637	0.637	0.637
	0.2	0.2	-1	0.1	363	0.273	0.273	0.273	0.273
	0.2	0.1	-1	0.1	344	0.28	0.28	0.279	0.278
	0.2	0	-1	0	379	0.157	0.157	0.157	0.157

	0.2	-0.1	-1	0	367	0.167	0.167	0.167	0.167
	0.2	-0.2	-1	0	360	0.173	0.173	0.173	0.173
	0.2	-0.3	-1	0	339	0.177	0.177	0.177	0.177
(0.3,0.3)									
	0.025	0.3	-0.3	0	549	0.451	0.451	0.448	0.448
	0.025	0.2	-0.2	0	527	0.473	0.473	0.473	0.473
	0.025	0.1	-0.1	0	550	0.45	0.45	0.45	0.45
	0.025	0	0.1	0	544	0.456	0.456	0.456	0.456
	0.025	-0.1	0.2	0	570	0.43	0.43	0.43	0.43
	0.025	-0.2	0.3	0	563	0.437	0.437	0.437	0.437
	0.025	-0.3	0.5	0	572	0.428	0.428	0.428	0.428
	0.05	0.3	-0.2	0	531	0.469	0.469	0.469	0.469
	0.05	0.2	0	0	571	0.429	0.429	0.429	0.429
	0.05	0.1	0.1	0	556	0.444	0.444	0.444	0.444
	0.05	0	0.4	0	528	0.472	0.472	0.472	0.472
	0.05	-0.1	0.6	0	519	0.481	0.481	0.481	0.481
	0.05	-0.2	1	0	548	0.452	0.452	0.452	0.452
	0.05	-0.3	1.4	0	530	0.47	0.47	0.47	0.47
	0.075	0.3	0	0	537	0.463	0.463	0.459	0.459
	0.075	0.2	0.3	0	562	0.438	0.438	0.438	0.438
	0.075	0.1	0.9	0	540	0.46	0.46	0.46	0.46
	0.075	0	1.8	0	534	0.466	0.466	0.466	0.466
	0.075	-0.1	4.2	0	559	0.441	0.441	0.441	0.441
	0.075	-0.2	22.9	0	545	0.455	0.455	0.455	0.455
	0.075	-0.3	-10.9	0	567	0.433	0.433	0.433	0.433
	0.1	0.3	0.7	0	566	0.434	0.434	0.432	0.432
	0.1	0.2	2.7	0	555	0.445	0.445	0.445	0.445
	0.1	0.1	-58.3	0	530	0.47	0.47	0.47	0.47
	0.1	0	-4.4	0	550	0.45	0.45	0.45	0.45
	0.1	-0.1	-2.7	0	567	0.433	0.433	0.433	0.433
	0.1	-0.2	-2.2	0	524	0.476	0.476	0.476	0.476
	0.1	-0.3	-1.9	0	558	0.442	0.442	0.442	0.442
	0.2	0.3	-1.1	0	567	0.433	0.433	0.433	0.433
	0.2	0.2	-1	0	551	0.115	0.115	0.115	0.115
	0.2	0.1	-1	0	539	0.113	0.113	0.113	0.113
	0.2	0	-1	0	548	0.07	0.07	0.07	0.07
	0.2	-0.1	-1	0	533	0.072	0.072	0.072	0.072
	0.2	-0.2	-1	0	545	0.073	0.073	0.073	0.073
	0.2	-0.3	-1	0	563	0.067	0.067	0.067	0.067
(0.8,0.8)									
	0.025	0.3	-0.3	0	195	0.797	0.797	0.752	0.751
	0.025	0.2	-0.2	0	187	0.809	0.809	0.801	0.797
	0.025	0.1	-0.1	0	188	0.812	0.812	0.812	0.812

0.025	0	0.1	0.1	208	0.792	0.792	0.792	0.792
0.025	-0.1	0.2	0.1	180	0.82	0.82	0.82	0.82
0.025	-0.2	0.3	0.1	187	0.813	0.813	0.812	0.811
0.025	-0.3	0.5	0.2	206	0.794	0.794	0.793	0.792
0.05	0.3	-0.2	0.1	175	0.814	0.814	0.76	0.758
0.05	0.2	0	0.2	179	0.818	0.818	0.816	0.813
0.05	0.1	0.1	0.2	200	0.8	0.8	0.8	0.799
0.05	0	0.4	0.3	194	0.806	0.806	0.805	0.803
0.05	-0.1	0.6	0.4	195	0.805	0.805	0.804	0.803
0.05	-0.2	1	0.7	204	0.796	0.796	0.795	0.794
0.05	-0.3	1.4	0.9	233	0.767	0.767	0.765	0.763
0.075	0.3	0	0.2	197	0.798	0.798	0.763	0.761
0.075	0.2	0.3	0.4	177	0.823	0.823	0.82	0.819
0.075	0.1	0.9	0.9	177	0.823	0.823	0.823	0.822
0.075	0	1.8	1.6	179	0.821	0.821	0.818	0.814
0.075	-0.1	4.2	3.9	195	0.804	0.803	0.799	0.792
0.075	-0.2	22.9	22.4	203	0.797	0.797	0.795	0.793
0.075	-0.3	-10.9	11.7	212	0.788	0.788	0.785	0.782
0.1	0.3	0.7	0.9	176	0.823	0.823	0.801	0.801
0.1	0.2	2.7	2.7	175	0.825	0.825	0.823	0.822
0.1	0.1	-58.3	58.5	187	0.813	0.813	0.813	0.812
0.1	0	-4.4	4.8	199	0.801	0.801	0.798	0.794
0.1	-0.1	-2.7	3.4	181	0.819	0.819	0.819	0.819
0.1	-0.2	-2.2	3.3	176	0.823	0.822	0.822	0.82
0.1	-0.3	-1.9	3.5	191	0.809	0.809	0.809	0.809
0.2	0.3	-1.1	3.7	202	0.798	0.798	0.79	0.788
0.2	0.2	-1	6.8	216	0.464	0.464	0.462	0.461
0.2	0.1	-1	1.7	180	0.495	0.495	0.493	0.491
0.2	0	-1	0.9	187	0.334	0.334	0.332	0.33
0.2	-0.1	-1	0.6	172	0.352	0.352	0.35	0.348
0.2	-0.2	-1	0.4	197	0.342	0.342	0.339	0.336
0.2	-0.3	-1	0.3	188	0.347	0.347	0.345	0.343

(0.5,0.5)

0.025	0.3	-0.3	0	375	0.624	0.624	0.619	0.619
0.025	0.2	-0.2	0	339	0.661	0.661	0.659	0.659
0.025	0.1	-0.1	0	364	0.636	0.636	0.636	0.635
0.025	0	0.1	0.1	355	0.645	0.645	0.645	0.645
0.025	-0.1	0.2	0.1	403	0.597	0.597	0.597	0.597
0.025	-0.2	0.3	0	356	0.644	0.644	0.643	0.642
0.025	-0.3	0.5	0.2	336	0.664	0.664	0.664	0.664
0.05	0.3	-0.2	0.1	356	0.643	0.643	0.631	0.631
0.05	0.2	0	0.2	366	0.634	0.634	0.634	0.634
0.05	0.1	0.1	0.1	343	0.657	0.657	0.657	0.657

0.05	0	0.4	0.3	356	0.644	0.644	0.644	0.644
0.05	-0.1	0.6	0.4	365	0.635	0.635	0.635	0.635
0.05	-0.2	1	0.7	348	0.652	0.652	0.652	0.652
0.05	-0.3	1.4	0.9	368	0.632	0.632	0.632	0.632
0.075	0.3	0	0.2	356	0.643	0.643	0.634	0.633
0.075	0.2	0.3	0.4	384	0.616	0.616	0.616	0.616
0.075	0.1	0.9	0	377	0.623	0.623	0.623	0.622
0.075	0	1.8	1.6	346	0.654	0.654	0.654	0.654
0.075	-0.1	4.2	0.925	344	0.656	0.656	0.655	0.654
0.075	-0.2	22.9	22.3	357	0.643	0.643	0.643	0.643
0.075	-0.3	-10.9	11.4	339	0.661	0.661	0.661	0.661
0.1	0.3	0.7	0.8	343	0.656	0.656	0.652	0.652
0.1	0.2	2.7	2.7	351	0.649	0.649	0.649	0.649
0.1	0.1	-58.3	58.2	358	0.642	0.642	0.642	0.642
0.1	0	-4.4	0	354	0.646	0.646	0.646	0.646
0.1	-0.1	-2.7	2.8	369	0.631	0.631	0.631	0.631
0.1	-0.2	-2.2	2.4	346	0.654	0.654	0.654	0.654
0.1	-0.3	-1.9	2.2	378	0.622	0.622	0.622	0.622
0.2	0.3	-1.1	0.8	331	0.669	0.669	0.668	0.668
0.2	0.2	-1	0.1	365	0.264	0.264	0.264	0.264
0.2	0.1	-1	0.1	367	0.269	0.269	0.268	0.267
0.2	0	-1	0	373	0.163	0.163	0.162	0.161
0.2	-0.1	-1	0	354	0.175	0.175	0.175	0.175
0.2	-0.2	-1	0	353	0.17	0.17	0.17	0.17
0.2	-0.3	-1	0	334	0.191	0.191	0.191	0.191

Table A2-2: 2 inspectors, 20 defects and 0.1 degree of difficulty.

2 ins/20 def/0.1 diff

(0.25,0.75)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.25	0.1	138	0.862	0.862	0.862	0.862
0.025	0.2	-0.15	0.15	120	0.88	0.88	0.88	0.88
0.025	0.1	-0.05	0.2	142	0.858	0.858	0.858	0.858
0.025	0	0.1	0.3	148	0.852	0.852	0.852	0.852
0.025	-0.1	0.2	0.45	128	0.872	0.872	0.872	0.872
0.025	-0.2	0.35	0.65	118	0.882	0.882	0.882	0.882
0.025	-0.3	0.45	0.85	136	0.864	0.864	0.864	0.864
0.05	0.3	-0.2	0.75	169	0.831	0.831	0.831	0.831
0.05	0.2	0	1.7	135	0.865	0.865	0.865	0.865
0.05	0.1	0.15	7.6	128	0.872	0.872	0.872	0.872
0.05	0	0.1	9.8	113	0.887	0.887	0.887	0.887
0.05	-0.1	0.2	4.55	112	0.888	0.888	0.888	0.888

0.05	-0.2	0.3	3.75	137	0.863	0.863	0.863	0.863
0.05	-0.3	0.45	3.7	119	0.881	0.881	0.881	0.881
0.075	0.3	-0.25	3.1	141	0.859	0.859	0.859	0.859
0.075	0.2	-0.1	2.3	130	0.87	0.87	0.87	0.87
0.075	0.1	0.05	2.5	123	0.877	0.877	0.877	0.877
0.075	0	0.2	3.25	118	0.882	0.882	0.882	0.882
0.075	-0.1	0.35	5.55	127	0.873	0.873	0.873	0.873
0.075	-0.2	0.6	24.25	114	0.886	0.886	0.886	0.886
0.075	-0.3	-1.25	11.3	110	0.89	0.89	0.89	0.89
0.1	0.3	-0.15	2.05	117	0.883	0.883	0.883	0.883
0.1	0.2	-0.05	3.95	134	0.866	0.866	0.866	0.866
0.1	0.1	-1.15	58.25	108	0.892	0.892	0.892	0.892
0.1	0	-1.1	3.35	130	0.87	0.87	0.87	0.87
0.1	-0.1	-1.1	2.9	122	0.878	0.878	0.878	0.878
0.1	-0.2	-1.05	1.15	130	0.87	0.87	0.87	0.87
0.1	-0.3	-1.05	2.2	134	0.866	0.866	0.866	0.866
0.2	0.3	-1	0.25	132	0.51	0.51	0.51	0.51
0.2	0.2	-1	0.2	122	0.482	0.482	0.482	0.482
0.2	0.1	-1	0.2	124	0.324	0.324	0.324	0.324
0.2	0	-1	0.15	116	0.328	0.328	0.328	0.328
0.2	-0.1	-1	0.1	149	0.327	0.327	0.327	0.327
0.2	-0.2	-1	0.1	104	0.33	0.33	0.33	0.33
0.2	-0.3	-1	0.1	126	0.346	0.346	0.346	0.346

(0.4,0.6)

0.025	0.3	-0.25	0.1	138	0.862	0.862	0.861	0.861
0.025	0.2	-0.15	0.1	122	0.878	0.878	0.878	0.878
0.025	0.1	-0.05	0.2	128	0.872	0.872	0.872	0.872
0.025	0	0.1	0.3	116	0.884	0.884	0.884	0.884
0.025	-0.1	0.2	0.4	143	0.857	0.857	0.857	0.857
0.025	-0.2	0.35	0.6	144	0.856	0.856	0.856	0.856
0.025	-0.3	0.45	0.85	135	0.865	0.865	0.865	0.865
0.05	0.3	-0.15	0.7	141	0.859	0.859	0.859	0.859
0.05	0.2	0	1.7	121	0.879	0.879	0.879	0.879
0.05	0.1	0.2	7.45	121	0.879	0.879	0.879	0.879
0.05	0	0.05	9.8	123	0.877	0.877	0.877	0.877
0.05	-0.1	0.15	4.55	123	0.877	0.877	0.877	0.877
0.05	-0.2	0.2	3.75	145	0.855	0.855	0.855	0.855
0.05	-0.3	0.375	3.7	130	0.87	0.87	0.87	0.87
0.075	0.3	-0.3	3.1	127	0.873	0.873	0.873	0.873
0.075	0.2	-0.15	2.3	101	0.899	0.899	0.899	0.899
0.075	0.1	-0.05	2.5	131	0.869	0.869	0.869	0.869
0.075	0	0.05	3.25	130	0.87	0.87	0.87	0.87
0.075	-0.1	0.25	5.55	119	0.881	0.881	0.881	0.881

	0.075	-0.2	0.2	24.25	113	0.887	0.887	0.887	0.887
	0.075	-0.3	-1.25	9.75	129	0.871	0.871	0.871	0.871
	0.1	0.3	-0.2	2.05	138	0.862	0.862	0.862	0.862
	0.1	0.2	-0.1	3.95	134	0.866	0.866	0.866	0.866
	0.1	0.1	-1.15	57.2	147	0.853	0.853	0.853	0.853
	0.1	0	-1.1	3.35	122	0.878	0.878	0.878	0.878
	0.1	-0.1	-1.1	1.7	139	0.861	0.861	0.861	0.861
	0.1	-0.2	-1.05	1.15	117	0.883	0.883	0.883	0.883
	0.1	-0.3	-1.05	0.85	119	0.881	0.881	0.881	0.881
	0.2	0.3	-1	0.25	128	0.469	0.469	0.469	0.469
	0.2	0.2	-1.05	0.2	126	0.479	0.479	0.479	0.479
	0.2	0.1	-1	0.2	122	0.318	0.318	0.318	0.318
	0.2	0	-1	0.15	123	0.344	0.344	0.344	0.344
	0.2	-0.1	-1	0.1	118	0.318	0.318	0.318	0.318
	0.2	-0.2	-1	0.1	120	0.325	0.325	0.325	0.325
	0.2	-0.3	-1	0.1	119	0.351	0.351	0.351	0.351
(0.3,0.3)									
	0.025	0.3	-0.2	0.05	299	0.701	0.701	0.701	0.701
	0.025	0.2	-0.05	0.1	296	0.704	0.704	0.704	0.704
	0.025	0.1	0.15	0.2	288	0.712	0.712	0.712	0.712
	0.025	0	0.35	0.25	290	0.71	0.71	0.71	0.71
	0.025	-0.1	0.6	0.4	283	0.717	0.717	0.717	0.717
	0.025	-0.2	0.9	0.6	295	0.705	0.705	0.705	0.705
	0.025	-0.3	1.3	0.85	278	0.722	0.722	0.722	0.722
	0.05	0.3	0.5	0.7	278	0.722	0.722	0.722	0.722
	0.05	0.2	1.65	1.65	294	0.706	0.706	0.706	0.706
	0.05	0.1	7.6	7.45	308	0.692	0.692	0.692	0.692
	0.05	0	-9.45	9.6	315	0.685	0.685	0.685	0.685
	0.05	-0.1	-3.95	4.25	298	0.702	0.702	0.702	0.702
	0.05	-0.2	-2.8	3.3	288	0.712	0.712	0.712	0.712
	0.05	-0.3	-2.3	3.7	299	0.701	0.701	0.701	0.701
	0.075	0.3	-3.1	2.95	298	0.702	0.702	0.702	0.702
	0.075	0.2	-1.95	2.3	301	0.699	0.699	0.699	0.699
	0.075	0.1	-1.65	1.85	295	0.705	0.705	0.705	0.705
	0.075	0	-1.45	1.85	296	0.704	0.704	0.704	0.704
	0.075	-0.1	-1.35	2.1	294	0.706	0.706	0.706	0.706
	0.075	-0.2	-1.3	24.25	316	0.684	0.684	0.684	0.684
	0.075	-0.3	-1.25	0.05	284	0.716	0.716	0.716	0.716
	0.1	0.3	-1.35	2.05	298	0.702	0.702	0.702	0.702
	0.1	0.2	-1.25	1.45	272	0.728	0.728	0.728	0.728
	0.1	0.1	-1.15	57.2	302	0.698	0.698	0.698	0.698
	0.1	0	-1.1	0.1	288	0.712	0.712	0.712	0.712
	0.1	-0.1	-1.1	1.7	291	0.709	0.709	0.709	0.709

	0.1	-0.2	-1.05	0.05	296	0.704	0.704	0.704	0.704
	0.1	-0.3	-1.05	0.85	294	0.706	0.706	0.706	0.706
	0.2	0.3	-1	0.1	277	0.246	0.246	0.246	0.246
	0.2	0.2	-0.95	0.1	320	0.225	0.225	0.225	0.225
	0.2	0.1	-0.95	0.05	295	0.136	0.136	0.136	0.136
	0.2	0	-0.95	0.05	290	0.125	0.125	0.125	0.125
	0.2	-0.1	-0.95	0.05	259	0.14	0.14	0.14	0.14
	0.2	-0.2	-0.95	0.05	293	0.118	0.118	0.118	0.118
	0.2	-0.3	-0.95	0.05	313	0.116	0.116	0.116	0.116
(0.8,0.8)									
	0.025	0.3	-0.3	0.05	40	0.959	0.959	0.95	0.95
	0.025	0.2	-0.15	0.05	31	0.969	0.969	0.968	0.968
	0.025	0.1	-0.05	0.05	27	0.973	0.973	0.973	0.973
	0.025	0	0.05	0.05	28	0.972	0.972	0.972	0.972
	0.025	-0.1	0.2	0.05	29	0.971	0.971	0.971	0.971
	0.025	-0.2	0.3	0.1	48	0.952	0.952	0.952	0.952
	0.025	-0.3	0.45	0.15	32	0.968	0.968	0.968	0.968
	0.05	0.3	-0.2	0.1	36	0.964	0.964	0.954	0.954
	0.05	0.2	-0.05	0.15	47	0.953	0.953	0.953	0.953
	0.05	0.1	0.15	0.2	38	0.962	0.962	0.962	0.962
	0.05	0	0.15	0.35	28	0.972	0.972	0.972	0.972
	0.05	-0.1	0.3	0.5	34	0.966	0.966	0.966	0.966
	0.05	-0.2	0.45	3.75	32	0.968	0.968	0.968	0.968
	0.05	-0.3	0.6	1.1	34	0.966	0.966	0.966	0.966
	0.075	0.3	-0.2	0.3375	30	0.97	0.97	0.969	0.969
	0.075	0.2	-0.05	0.55	26	0.974	0.974	0.974	0.974
	0.075	0.1	0.15	0.95	34	0.966	0.966	0.966	0.966
	0.075	0	0.4	1.8	36	0.964	0.964	0.964	0.964
	0.075	-0.1	0.65	4.5	42	0.958	0.958	0.958	0.958
	0.075	-0.2	1	22.75	34	0.966	0.966	0.966	0.966
	0.075	-0.3	-1.25	12.8	39	0.961	0.961	0.961	0.961
	0.1	0.3	-0.05	1	26	0.974	0.974	0.972	0.972
	0.1	0.2	0.2	2.9	32	0.968	0.968	0.968	0.968
	0.1	0.1	-1.15	58.5	37	0.963	0.963	0.963	0.963
	0.1	0	-1.1	4.85	41	0.959	0.959	0.959	0.959
	0.1	-0.1	-1.1	3.6	37	0.963	0.963	0.963	0.963
	0.1	-0.2	-1.05	3.45	43	0.957	0.957	0.957	0.957
	0.1	-0.3	-1.05	3.75	38	0.962	0.962	0.962	0.962
	0.2	0.3	-1.1	0.4	33	0.746	0.746	0.746	0.746
	0.2	0.2	-1.15	0.55	34	0.742	0.742	0.742	0.742
	0.2	0.1	-1.15	0.4	36	0.658	0.658	0.658	0.658
	0.2	0	-1.1	0.25	29	0.623	0.623	0.623	0.623
	0.2	-0.1	-1.05	0.25	41	0.631	0.631	0.631	0.631

0.025	0.3	-0.233333333	0.033333333	0	0.962	0.962	0.962	0.962
0.025	0.2	-0.133333333	0.066666667	0	0.965	0.965	0.965	0.965
0.025	0.1	0.033333333	0.1	0	0.948	0.948	0.948	0.948
0.025	0	0.166666667	0.133333333	0	0.965	0.965	0.965	0.965
0.025	-0.1	0.333333333	0.2	0	0.953	0.953	0.953	0.953
0.025	-0.2	0.5	0.266666667	0	0.952	0.952	0.952	0.952
0.025	-0.3	0.4	1.733333333	0	0.947	0.947	0.947	0.947
0.05	0.3	-0.2	1	0	0.953	0.953	0.953	0.953
0.05	0.2	-0.033333333	1.3	0	0.956	0.956	0.956	0.956
0.05	0.1	0.133333333	1.766666667	0	0.955	0.955	0.955	0.955
0.05	0	0.233333333	2.566666667	0	0.951	0.951	0.951	0.951
0.05	-0.1	0.633333333	4.333333333	0	0.959	0.959	0.959	0.959
0.05	-0.2	0.966666667	11.466666667	0	0.967	0.967	0.967	0.967
0.05	-0.3	-6.633333333	23.6	0	0.956	0.956	0.956	0.956
0.075	0.3	0	2.433333333	0	0.959	0.959	0.959	0.959
0.075	0.2	0.333333333	15.966666667	0	0.954	0.954	0.954	0.954
0.075	0.1	-3.266666667	5.833333333	0	0.954	0.954	0.954	0.954
0.075	0	-3.266666667	6.1	0	0.954	0.954	0.954	0.954
0.075	-0.1	-3.266666667	6.6	0	0.961	0.961	0.961	0.961
0.075	-0.2	-3.266666667	7.2	0	0.953	0.953	0.953	0.953
0.075	-0.3	-5.566666667	5	0	0.954	0.954	0.954	0.954
0.1	0.3	-2.133333333	3.4	0	0.951	0.951	0.951	0.951
0.1	0.2	-2.133333333	3.8	0	0.96	0.96	0.96	0.96
0.1	0.1	-2.3	2.716666667	0	0.96	0.96	0.96	0.96
0.1	0	-3.3	2.633333333	0	0.956	0.956	0.956	0.956
0.1	-0.1	-3.3	2.633333333	0	0.957	0.957	0.957	0.957
0.1	-0.2	-3.3	2.333333333	0	0.94	0.94	0.94	0.94
0.1	-0.3	-3.3	2.333333333	0	0.959	0.959	0.959	0.959
0.2	0.3	-1.466666667	0.5	0	0.96	0.96	0.96	0.96
0.2	0.2	-1.3	0.5	0	0.954	0.954	0.954	0.954
0.2	0.1	-1.466666667	0.433333333	0	0.955	0.955	0.955	0.955
0.2	0	-1.466666667	0.433333333	0	0.963	0.963	0.963	0.963
0.2	-0.1	-1.466666667	0.5	0	0.958	0.958	0.958	0.958
0.2	-0.2	-1.466666667	0.5	0	0.958	0.958	0.958	0.958
0.2	-0.3	-1.466666667	0.433333333	0	0.956	0.956	0.956	0.956

(0.4, 0.6)

0.025	0.3	-0.233333333	0.033333333	0	0.943	0.943	0.943	0.943
0.025	0.2	-0.133333333	0.433333333	0	0.959	0.959	0.959	0.959
0.025	0.1	0.033333333	0.766666667	0	0.952	0.952	0.952	0.952
0.025	0	0.166666667	1.333333333	0	0.962	0.962	0.962	0.962
0.025	-0.1	0.333333333	2.6	0	0.965	0.965	0.965	0.965
0.025	-0.2	0.5	0.233333333	0	0.954	0.954	0.954	0.954
0.025	-0.3	0.466666667	1878.833333	0	0.949	0.949	0.949	0.949

0.05	0.3	-0.2	6.633333333	0	0.932	0.932	0.932	0.932
0.05	0.2	-0.1	6.933333333	0	0.952	0.952	0.952	0.952
0.05	0.1	0.133333333	1.766666667	0	0.95	0.95	0.95	0.95
0.05	0	0.366666667	2.566666667	0	0.95	0.95	0.95	0.95
0.05	-0.1	0.633333333	4.333333333	0	0.949	0.949	0.949	0.949
0.05	-0.2	0.966666667	11.46666667	0	0.955	0.955	0.955	0.955
0.05	-0.3	-6.633333333	23.6	0	0.944	0.944	0.944	0.944
0.075	0.3	0	2.433333333	0	0.963	0.963	0.963	0.963
0.075	0.2	0.333333333	18.23333333	0	0.947	0.947	0.947	0.947
0.075	0.1	-3.266666667	5.833333333	0	0.945	0.945	0.945	0.945
0.075	0	-3.266666667	6.1	0	0.958	0.958	0.958	0.958
0.075	-0.1	-3.266666667	6.733333333	0	0.965	0.965	0.965	0.965
0.075	-0.2	-3.266666667	7.033333333	0	0.956	0.956	0.956	0.956
0.075	-0.3	-5.566666667	3.166666667	0	0.957	0.957	0.957	0.957
0.1	0.3	-2.133333333	3.4	0	0.96	0.96	0.96	0.96
0.1	0.2	-2.133333333	3.666666667	0	0.943	0.943	0.943	0.943
0.1	0.1	-3.3	1.833333333	0	0.956	0.956	0.956	0.956
0.1	0	-3.3	1.5	0	0.954	0.954	0.954	0.954
0.1	-0.1	-3.3	1.833333333	0	0.959	0.959	0.959	0.959
0.1	-0.2	-3.3	2.333333333	0	0.948	0.948	0.948	0.948
0.1	-0.3	-3.3	2.333333333	0	0.954	0.954	0.954	0.954
0.2	0.3	-1.466666667	0.5	0	0.96	0.96	0.96	0.96
0.2	0.2	-1.466666667	0.5	0	0.951	0.951	0.951	0.951
0.2	0.1	-1.466666667	0.5	0	0.945	0.945	0.945	0.945
0.2	0	-1.3	0.5	0	0.947	0.947	0.947	0.947
0.2	-0.1	-1.466666667	0.5	0	0.951	0.951	0.951	0.951
0.2	-0.2	-1.466666667	0.5	0	0.96	0.96	0.96	0.96
0.2	-0.3	-1.466666667	0.5	0	0.962	0.962	0.962	0.962

(0.3, 0.3)

0.025	0.3	-0.233333333	0.233333333	0	0.853	0.853	0.853	0.853
0.025	0.2	-0.1	0.433333333	0	0.824	0.824	0.824	0.824
0.025	0.1	0.033333333	0.741666667	0	0.834	0.834	0.834	0.834
0.025	0	0.166666667	1.333333333	0	0.826	0.826	0.826	0.826
0.025	-0.1	0.333333333	2.6	0	0.856	0.856	0.856	0.856
0.025	-0.2	0.533333333	6.633333333	0	0.834	0.834	0.834	0.834
0.025	-0.3	-1	1878.566667	0	0.847	0.847	0.847	0.847
0.05	0.3	-1	6.633333333	0	0.843	0.843	0.843	0.843
0.05	0.2	-1	6.933333333	0	0.847	0.847	0.847	0.847
0.05	0.1	-1	7.4	0	0.82	0.82	0.82	0.82
0.05	0	-1	8.2	0	0.865	0.865	0.865	0.865
0.05	-0.1	-1	9.966666667	0	0.831	0.831	0.831	0.831
0.05	-0.2	-1	17.1	0	0.846	0.846	0.846	0.846
0.05	-0.3	-6.633333333	21.8	0	0.837	0.837	0.837	0.837

0.075	0.3	-1	4.7	0	0.842	0.842	0.842	0.842
0.075	0.2	-1	18.23333333	0	0.841	0.841	0.841	0.841
0.075	0.1	-3.266666667	4.566666667	0	0.823	0.823	0.823	0.823
0.075	0	-3.266666667	4.566666667	0	0.838	0.838	0.838	0.838
0.075	-0.1	-3.266666667	4.566666667	0	0.847	0.847	0.847	0.847
0.075	-0.2	-3.266666667	2.5	0	0.846	0.846	0.846	0.846
0.075	-0.3	-3.5	2.3	0	0.834	0.834	0.834	0.834
0.1	0.3	-2.133333333	2.3	0	0.865	0.865	0.865	0.865
0.1	0.2	-2.133333333	1.3	0	0.836	0.836	0.836	0.836
0.1	0.1	-2.3	1.166666667	0	0.82	0.82	0.82	0.82
0.1	0	-2.133333333	1.166666667	0	0.844	0.844	0.844	0.844
0.1	-0.1	-2.3	1.166666667	0	0.837	0.837	0.837	0.837
0.1	-0.2	-2.3	1.166666667	0	0.84	0.84	0.84	0.84
0.1	-0.3	-2.3	1.166666667	0	0.853	0.853	0.853	0.853
0.2	0.3	-1.2	0.333333333	0	0.841	0.841	0.841	0.841
0.2	0.2	-1.2	0.166666667	0	0.839	0.839	0.839	0.839
0.2	0.1	-1.2	0.166666667	0	0.846	0.846	0.846	0.846
0.2	0	-1.2	0.166666667	0	0.846	0.846	0.846	0.846
0.2	-0.1	-1.2	0.166666667	0	0.839	0.839	0.839	0.839
0.2	-0.2	-1.2	0.166666667	0	0.845	0.845	0.845	0.845
0.2	-0.3	-1.133333333	0.166666667	0	0.824	0.824	0.824	0.824

(0.8, 0.8)

0.025	0.3	-0.266666667	0.066666667	0	0.997	0.997	0.997	0.997
0.025	0.2	-0.166666667	0.066666667	0	0.988	0.988	0.988	0.988
0.025	0.1	-0.066666667	0.1	0	0.991	0.991	0.991	0.991
0.025	0	0.066666667	0.133333333	0	0.992	0.992	0.992	0.992
0.025	-0.1	0.2	0.2	0	0.991	0.991	0.991	0.991
0.025	-0.2	0.333333333	0.266666667	0	0.993	0.993	0.993	0.993
0.025	-0.3	0.4	0.166666667	0	0.992	0.992	0.992	0.992
0.05	0.3	-0.2	0.1	0	0.993	0.993	0.993	0.993
0.05	0.2	-0.066666667	0.2	0	0.996	0.996	0.995	0.995
0.05	0.1	0.1	0.3	0	0.994	0.994	0.994	0.994
0.05	0	0.266666667	0.366666667	0	0.994	0.994	0.994	0.994
0.05	-0.1	0.4	0.566666667	0	0.991	0.991	0.991	0.991
0.05	-0.2	0.633333333	0.833333333	0	0.99	0.99	0.99	0.99
0.05	-0.3	0.533333333	8.333333333	0	0.994	0.994	0.994	0.994
0.075	0.3	-0.066666667	0.4	0	0.995	0.995	0.995	0.995
0.075	0.2	0.1	0.633333333	0	0.993	0.993	0.993	0.993
0.075	0.1	0.133333333	4.133333333	0	0.993	0.993	0.993	0.993
0.075	0	0.266666667	4.066666667	0	0.996	0.996	0.996	0.996
0.075	-0.1	0.566666667	7.466666667	0	0.995	0.995	0.995	0.995
0.075	-0.2	0.633333333	5.6	0	0.994	0.994	0.994	0.994
0.075	-0.3	-3.266666667	7.533333333	0	0.995	0.995	0.995	0.995

0.1	0.3	-0.133333333	3	0	0.997	0.997	0.997	0.997
0.1	0.2	0.166666667	5	0	0.992	0.992	0.992	0.992
0.1	0.1	-2.216666667	4.3	0	0.992	0.992	0.992	0.992
0.1	0	-2.3	4.775	0	0.996	0.996	0.996	0.996
0.1	-0.1	-2.3	5.3	0	0.996	0.996	0.996	0.996
0.1	-0.2	-3.633333333	5.6	0	0.996	0.996	0.996	0.996
0.1	-0.3	-3.633333333	5.6	0	0.992	0.992	0.992	0.992
0.2	0.3	-1.466666667	0.833333333	0	0.989	0.989	0.989	0.989
0.2	0.2	-1.633333333	0.833333333	0	0.995	0.995	0.995	0.995
0.2	0.1	-1.633333333	0.766666667	0	0.992	0.992	0.992	0.992
0.2	0	-1.633333333	0.766666667	0	0.994	0.994	0.994	0.994
0.2	-0.1	-1.633333333	0.766666667	0	0.993	0.993	0.993	0.993
0.2	-0.2	-1.633333333	0.766666667	0	0.991	0.991	0.991	0.991
0.2	-0.3	-1.633333333	0.766666667	0	0.995	0.995	0.995	0.995
(0.5, 0.5)								
0.025	0.3	-0.233333333	0.233333333	0	0.945	0.945	0.945	0.945
0.025	0.2	-0.133333333	0.433333333	0	0.939	0.939	0.939	0.939
0.025	0.1	0.033333333	0.766666667	0	0.937	0.937	0.937	0.937
0.025	0	0.166666667	1.333333333	0	0.94	0.94	0.94	0.94
0.025	-0.1	0.333333333	2.6	0	0.957	0.957	0.957	0.957
0.025	-0.2	0.5	6.633333333	0	0.956	0.956	0.956	0.956
0.025	-0.3	0.466666667	1.733333333	0	0.958	0.958	0.958	0.958
0.05	0.3	-0.2	6.633333333	0	0.953	0.953	0.953	0.953
0.05	0.2	-0.033333333	6.933333333	0	0.954	0.954	0.954	0.954
0.05	0.1	0.133333333	7.4	0	0.946	0.946	0.946	0.946
0.05	0	0.266666667	8.2	0	0.962	0.962	0.962	0.962
0.05	-0.1	0.633333333	9.966666667	0	0.947	0.947	0.947	0.947
0.05	-0.2	0.966666667	17.1	0	0.959	0.959	0.959	0.959
0.05	-0.3	-6.633333333	23.6	0	0.962	0.962	0.962	0.962
0.075	0.3	0	4.7	0	0.943	0.943	0.943	0.943
0.075	0.2	0.333333333	15.966666667	0	0.952	0.952	0.952	0.952
0.075	0.1	-3.266666667	5.833333333	0	0.957	0.957	0.957	0.957
0.075	0	-3.266666667	6.1	0	0.944	0.944	0.944	0.944
0.075	-0.1	-3.266666667	6.6	0	0.952	0.952	0.952	0.952
0.075	-0.2	-3.266666667	7.033333333	0	0.947	0.947	0.947	0.947
0.075	-0.3	-5.566666667	3.166666667	0	0.955	0.955	0.955	0.955
0.1	0.3	-2.133333333	3.333333333	0	0.948	0.948	0.948	0.948
0.1	0.2	-2.133333333	3.8	0	0.948	0.948	0.948	0.948
0.1	0.1	-3.3	1.833333333	0	0.942	0.942	0.942	0.942
0.1	0	-3.3	1.833333333	0	0.954	0.954	0.954	0.954
0.1	-0.1	-3.3	1.833333333	0	0.951	0.951	0.951	0.951
0.1	-0.2	-3.633333333	2.333333333	0	0.958	0.958	0.958	0.958
0.1	-0.3	-3.633333333	2.333333333	0	0.953	0.953	0.953	0.953

0.2	0.3	-1.466666667	0.5	0	0.952	0.952	0.952	0.952
0.2	0.2	-1.3	0.5	0	0.956	0.956	0.956	0.956
0.2	0.1	-1.466666667	0.5	0	0.945	0.945	0.945	0.945
0.2	0	-1.3	0.5	0	0.971	0.971	0.971	0.971
0.2	-0.1	-1.466666667	0.433333333	0	0.959	0.959	0.959	0.959
0.2	-0.2	-1.466666667	0.5	0	0.951	0.951	0.951	0.951
0.2	-0.3	-1.3	0.5	0	0.959	0.959	0.959	0.959

Table A2-4: 2 inspectors, 10 defects and 0.4 degree of difficulty.

2 ins/10 def/0.4 diff

(0.25,0.75)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.3	0	12	0.743	0.71	0.556	0.435
0.025	0.2	-0.2	0	11	0.902	0.874	0.806	0.691
0.025	0.1	-0.1	0	9	0.991	0.947	0.991	0.864
0.025	0	0	0	7	0.993	0.96	0.993	0.882
0.025	-0.1	0.1	0	11	0.957	0.92	0.892	0.758
0.025	-0.2	0.2	0	7	0.959	0.924	0.908	0.788
0.025	-0.3	0.3	0	10	0.965	0.94	0.881	0.765
0.05	0.3	-0.3	0	11	0.728	0.699	0.579	0.46
0.05	0.2	-0.2	0	12	0.904	0.859	0.826	0.696
0.05	0.1	-0.1	0	6	0.994	0.956	0.994	0.874
0.05	0	0	0.1	14	0.986	0.952	0.984	0.86
0.05	-0.1	0.1	0.1	4	0.969	0.931	0.917	0.8
0.05	-0.2	0.3	0.1	9	0.954	0.917	0.912	0.798
0.05	-0.3	0.4	0.2	11	0.957	0.925	0.879	0.767
0.075	0.3	-0.3	0.1	11	0.79	0.762	0.628	0.516
0.075	0.2	-0.2	0.1	13	0.926	0.891	0.838	0.726
0.075	0.1	0	0.1	9	0.991	0.957	0.991	0.866
0.075	0	0.1	0.2	13	0.987	0.952	0.968	0.851
0.075	-0.1	0.2	0.2	6	0.966	0.932	0.904	0.78
0.075	-0.2	0.3	0.3	11	0.947	0.905	0.894	0.769
0.075	-0.3	0.4	0.2	6	0.952	0.91	0.872	0.744
0.1	0.3	-0.2	0.1	9	0.827	0.803	0.683	0.574
0.1	0.2	-0.1	0.2	12	0.944	0.915	0.893	0.778
0.1	0.1	0	0.1	8	0.99	0.959	0.988	0.876
0.1	0	0.1	0.3	9	0.975	0.937	0.954	0.842
0.1	-0.1	0.2	0.3	7	0.963	0.926	0.89	0.757
0.1	-0.2	0.3	0.3	15	0.951	0.916	0.886	0.77
0.1	-0.3	0.5	0.5	7	0.96	0.927	0.875	0.757
0.2	0.3	0	0.8	12	0.912	0.879	0.814	0.685
0.2	0.2	-0.1	1.4	11	0.881	0.844	0.833	0.713

	0.2	0.1	0	1.7	9	0.916	0.879	0.874	0.76
	0.2	0	0.2	2	9	0.867	0.836	0.804	0.693
	0.2	-0.1	0.4	2.6	7	0.855	0.815	0.794	0.686
	0.2	-0.2	-1	2.4	9	0.877	0.84	0.793	0.668
	0.2	-0.3	-1	2.3	14	0.842	0.804	0.754	0.626
(0.4,0.6)									
	0.025	0.3	-0.3	0	10	0.74	0.717	0.565	0.464
	0.025	0.2	-0.2	0	13	0.893	0.869	0.825	0.707
	0.025	0.1	-0.1	0	14	0.986	0.946	0.986	0.869
	0.025	0	0	0	17	0.983	0.956	0.983	0.858
	0.025	-0.1	0.1	0	9	0.969	0.94	0.913	0.806
	0.025	-0.2	0.2	0	12	0.948	0.906	0.918	0.806
	0.025	-0.3	0.3	0	12	0.949	0.91	0.867	0.737
	0.05	0.3	-0.3	0	7	0.74	0.713	0.571	0.469
	0.05	0.2	-0.2	0	9	0.916	0.88	0.819	0.708
	0.05	0.1	-0.1	0.1	6	0.994	0.96	0.994	0.884
	0.05	0	0	0.1	11	0.989	0.94	0.977	0.841
	0.05	-0.1	0.2	0.1	13	0.962	0.933	0.904	0.792
	0.05	-0.2	0.3	0.1	7	0.965	0.935	0.906	0.794
	0.05	-0.3	0.4	0.2	10	0.965	0.94	0.897	0.799
	0.075	0.3	-0.3	0.1	11	0.791	0.762	0.666	0.552
	0.075	0.2	-0.1	0.1	6	0.952	0.915	0.887	0.782
	0.075	0.1	0	0.2	12	0.988	0.958	0.988	0.881
	0.075	0	0.1	0.2	10	0.975	0.937	0.973	0.865
	0.075	-0.1	0.2	0.3	12	0.969	0.946	0.913	0.815
	0.075	-0.2	0.3	0.4	9	0.965	0.939	0.906	0.81
	0.075	-0.3	0.4	0.3	6	0.958	0.922	0.886	0.775
	0.1	0.3	-0.2	0.2	11	0.856	0.828	0.702	0.605
	0.1	0.2	-0.1	0.2	12	0.957	0.912	0.926	0.8
	0.1	0.1	0	0.2	10	0.982	0.952	0.979	0.86
	0.1	0	0.1	0.3	8	0.972	0.942	0.929	0.807
	0.1	-0.1	0.3	0.6	8	0.965	0.938	0.919	0.823
	0.1	-0.2	0.4	0.5	10	0.956	0.922	0.89	0.784
	0.1	-0.3	0.5	1.3	12	0.956	0.924	0.893	0.793
	0.2	0.3	0	0.8	12	0.943	0.918	0.851	0.748
	0.2	0.2	-0.2	1.4	11	0.906	0.87	0.839	0.739
	0.2	0.1	-0.1	3.3	12	0.892	0.868	0.836	0.738
	0.2	0	0	2.9	7	0.876	0.849	0.814	0.712
	0.2	-0.1	0.1	3.2	14	0.848	0.818	0.779	0.674
	0.2	-0.2	-1	2.6	9	0.842	0.81	0.776	0.674
	0.2	-0.3	-1	2.2	9	0.843	0.813	0.767	0.656
(0.3,0.3)									
	0.025	0.3	-0.3	0	81	0.865	0.862	0.752	0.743

0.025	0.2	-0.2	0	81	0.911	0.909	0.885	0.875
0.025	0.1	-0.1	0	71	0.929	0.927	0.929	0.92
0.025	0	0	0.1	85	0.915	0.913	0.915	0.902
0.025	-0.1	0.1	0.1	77	0.922	0.92	0.909	0.893
0.025	-0.2	0.2	0.1	73	0.925	0.923	0.918	0.907
0.025	-0.3	0.3	0.2	70	0.924	0.918	0.913	0.896
0.05	0.3	-0.3	0.1	89	0.866	0.866	0.767	0.759
0.05	0.2	-0.2	0.2	80	0.903	0.902	0.881	0.863
0.05	0.1	0	0.2	77	0.923	0.922	0.923	0.916
0.05	0	0.1	0.4	82	0.918	0.917	0.913	0.897
0.05	-0.1	0.2	0.4	77	0.923	0.923	0.915	0.907
0.05	-0.2	0.3	0.7	59	0.938	0.935	0.929	0.915
0.05	-0.3	0.5	1	70	0.927	0.924	0.921	0.912
0.075	0.3	-0.2	0.3	74	0.901	0.899	0.804	0.796
0.075	0.2	-0.1	0.4	77	0.921	0.919	0.901	0.893
0.075	0.1	0.1	0.9	80	0.92	0.918	0.92	0.909
0.075	0	0.2	1.7	91	0.908	0.906	0.907	0.9
0.075	-0.1	0.4	4	73	0.924	0.921	0.923	0.916
0.075	-0.2	0.6	22.5	75	0.922	0.919	0.906	0.886
0.075	-0.3	0.4	11.7	64	0.936	0.936	0.929	0.922
0.1	0.3	-0.1	0.9	71	0.914	0.914	0.843	0.835
0.1	0.2	0	2.8	83	0.913	0.911	0.9	0.885
0.1	0.1	-0.1	58.5	77	0.923	0.922	0.922	0.92
0.1	0	0.1	4.8	91	0.907	0.905	0.9	0.889
0.1	-0.1	0.2	3.4	74	0.923	0.92	0.916	0.905
0.1	-0.2	0.3	3.3	70	0.928	0.926	0.917	0.904
0.1	-0.3	0.4	3.5	64	0.933	0.93	0.921	0.906
0.2	0.3	-0.1	3.7	69	0.926	0.926	0.909	0.902
0.2	0.2	-1	7.6	64	0.713	0.712	0.707	0.698
0.2	0.1	-1	2.6	81	0.71	0.71	0.699	0.688
0.2	0	-1	1.9	67	0.575	0.574	0.568	0.56
0.2	-0.1	-1	1.7	60	0.585	0.583	0.573	0.559
0.2	-0.2	-1	0.7	79	0.568	0.566	0.559	0.548
0.2	-0.3	-1	0.6	85	0.555	0.553	0.545	0.533

(0.8,0.8)

0.025	0.3	-0.3	0	6	0.512	0.274	0.575	0.099
0.025	0.2	-0.2	0	3	0.781	0.549	0.755	0.304
0.025	0.1	-0.1	0	1	0.999	0.751	0.999	0.49
0.025	0	0	0	0	1	0.75	1	0.536
0.025	-0.1	0.1	0	1	0.835	0.59	0.772	0.3
0.025	-0.2	0.2	0	0	0.8	0.574	0.768	0.31
0.025	-0.3	0.3	0	0	0.745	0.488	0.607	0.121
0.05	0.3	-0.3	0	13	0.537	0.281	0.63	0.111

	0.05	0.2	-0.2	0	1	0.77	0.525	0.784	0.31
	0.05	0.1	-0.1	0	0	1	0.746	1	0.537
	0.05	0	0	0	0	1	0.753	0.984	0.493
	0.05	-0.1	0.1	0	0	0.824	0.573	0.789	0.327
	0.05	-0.2	0.2	0.1	1	0.788	0.56	0.752	0.292
	0.05	-0.3	0.3	0.1	0	0.75	0.497	0.61	0.127
	0.075	0.3	-0.3	0.1	7	0.603	0.372	0.599	0.15
	0.075	0.2	-0.2	0.1	0	0.802	0.556	0.818	0.336
	0.075	0.1	-0.1	0.1	1	0.999	0.76	0.999	0.539
	0.075	0	0	0.1	0	0.944	0.716	0.944	0.478
	0.075	-0.1	0.1	0.1	0	0.822	0.584	0.789	0.332
	0.075	-0.2	0.3	0.1	2	0.786	0.568	0.66	0.182
	0.075	-0.3	0.4	0.2	0	0.742	0.482	0.619	0.146
	0.1	0.3	-0.2	0.1	10	0.634	0.381	0.654	0.177
	0.1	0.2	-0.1	0.1	2	0.897	0.648	0.876	0.396
	0.1	0.1	0	0.1	0	0.981	0.758	0.973	0.502
	0.1	0	0.1	0.1	2	0.911	0.676	0.879	0.401
	0.1	-0.1	0.2	0.2	1	0.806	0.559	0.759	0.278
	0.1	-0.2	0.3	0.2	1	0.762	0.517	0.646	0.14
	0.1	-0.3	0.4	0.2	0	0.728	0.453	0.605	0.118
	0.2	0.3	0	0.5	3	0.728	0.509	0.704	0.251
	0.2	0.2	0	0.5	2	0.803	0.586	0.721	0.247
	0.2	0.1	0.1	0.5	0	0.807	0.577	0.722	0.244
	0.2	0	0.2	0.6	1	0.813	0.582	0.691	0.236
	0.2	-0.1	0.4	0.7	3	0.754	0.48	0.618	0.119
	0.2	-0.2	0.2	0.8	1	0.779	0.553	0.624	0.166
	0.2	-0.3	0.3	0.9	0	0.761	0.517	0.606	0.121
(0.5,0.5)	0.025	0.3	-0.3	0	8	0.746	0.72	0.574	0.469
	0.025	0.2	-0.2	0	10	0.912	0.879	0.833	0.722
	0.025	0.1	-0.1	0	7	0.993	0.968	0.993	0.886
	0.025	0	0	0	10	0.99	0.954	0.99	0.85
	0.025	-0.1	0.1	0	14	0.957	0.921	0.9	0.778
	0.025	-0.2	0.2	0	15	0.954	0.923	0.914	0.812
	0.025	-0.3	0.3	0	13	0.952	0.917	0.888	0.782
	0.05	0.3	-0.3	0	10	0.778	0.752	0.594	0.498
	0.05	0.2	-0.2	0	17	0.905	0.873	0.822	0.711
	0.05	0.1	-0.1	0.1	19	0.981	0.941	0.981	0.859
	0.05	0	0	0.1	10	0.99	0.959	0.981	0.869
	0.05	-0.1	0.2	0.1	14	0.957	0.924	0.902	0.785
	0.05	-0.2	0.3	0.1	9	0.97	0.948	0.918	0.827
	0.05	-0.3	0.4	0.2	16	0.96	0.936	0.884	0.78
	0.075	0.3	-0.3	0.1	5	0.799	0.774	0.645	0.537

0.075	0.2	-0.1	0.1	9	0.944	0.913	0.894	0.785
0.075	0.1	0	0.2	15	0.985	0.956	0.985	0.875
0.075	0	0.1	0.2	14	0.972	0.931	0.957	0.842
0.075	-0.1	0.2	0.3	13	0.963	0.935	0.91	0.805
0.075	-0.2	0.4	0.4	10	0.959	0.928	0.886	0.768
0.075	-0.3	0.4	0.5	13	0.959	0.931	0.888	0.783
0.1	0.3	-0.2	0.2	10	0.858	0.829	0.704	0.607
0.1	0.2	-0.1	0.2	8	0.973	0.936	0.93	0.809
0.1	0.1	0	0.2	7	0.99	0.96	0.984	0.882
0.1	0	0.1	0.3	13	0.965	0.933	0.935	0.833
0.1	-0.1	0.3	0.6	5	0.97	0.942	0.908	0.799
0.1	-0.2	0.4	0.9	15	0.959	0.933	0.894	0.794
0.1	-0.3	0.5	1.3	14	0.965	0.944	0.891	0.795
0.2	0.3	0	2.9	11	0.941	0.907	0.843	0.744
0.2	0.2	-0.2	1.4	10	0.895	0.86	0.817	0.703
0.2	0.1	-0.1	3.1	15	0.89	0.862	0.835	0.728
0.2	0	0	2.5	15	0.812	0.781	0.755	0.651
0.2	-0.1	0.1	2.675	12	0.82	0.78	0.762	0.656
0.2	-0.2	-1	2.6	11	0.851	0.829	0.778	0.679
0.2	-0.3	-1	2.5	12	0.857	0.837	0.779	0.681

Table A2-5: 2 inspectors, 20 defects and 0.4 degree of difficulty.

2 ins/20 def/0.4 diff

(0.25,0.75)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.3	0	0	0.847	0.845	0.567	0.528
0.025	0.2	-0.2	0	1	0.973	0.968	0.851	0.82
0.025	0.1	-0.1	0	0	0.995	0.99	0.971	0.942
0.025	0	0	0	0	1	0.998	1	0.958
0.025	-0.1	0.1	0	0	0.995	0.99	0.976	0.945
0.025	-0.2	0.2	0	0	0.998	0.996	0.966	0.93
0.025	-0.3	0.3	0.05	0	0.999	0.998	0.968	0.936
0.05	0.3	-0.3	0	0	0.864	0.86	0.591	0.558
0.05	0.2	-0.2	0.05	0	0.972	0.97	0.854	0.824
0.05	0.1	-0.1	0.05	0	1	0.998	0.95	0.925
0.05	0	0.05	0.05	0	0.999	0.998	1	0.962
0.05	-0.1	0.15	0.05	0	0.998	0.996	0.969	0.931
0.05	-0.2	0.25	0.1	0	0.998	0.996	0.966	0.932
0.05	-0.3	0.35	0.1	0	0.998	0.996	0.976	0.952
0.075	0.3	-0.25	0.05	0	0.905	0.9	0.679	0.634
0.075	0.2	-0.15	0.1	0	0.975	0.973	0.881	0.853
0.075	0.1	-0.05	0.1	0	0.997	0.994	0.959	0.922

	0.075	0	0.05	0.15	0	1	1	0.989	0.947
	0.075	-0.1	0.2	0.15	0	0.997	0.994	0.978	0.949
	0.075	-0.2	0.3	0.2	0	0.999	0.998	0.97	0.939
	0.075	-0.3	0.45	0.25	0	0.997	0.994	0.975	0.95
	0.1	0.3	-0.25	0.1	0	0.913	0.911	0.746	0.711
	0.1	0.2	-0.1	0.1	1	0.986	0.981	0.914	0.885
	0.1	0.1	0	0.15	0	0.999	0.997	0.978	0.953
	0.1	0	0.1	0.2	0	0.998	0.996	0.979	0.949
	0.1	-0.1	0.25	0.3	0	0.997	0.993	0.963	0.92
	0.1	-0.2	0.4	0.45	0	0.997	0.994	0.976	0.951
	0.1	-0.3	0.55	0.55	1	0.997	0.995	0.971	0.943
	0.2	0.3	0	0.55	0	0.977	0.974	0.86	0.818
	0.2	0.2	0.05	0.65	0	0.989	0.987	0.941	0.917
	0.2	0.1	0.25	1.15	0	0.987	0.984	0.945	0.906
	0.2	0	0.2	2.0125	0	0.993	0.991	0.954	0.921
	0.2	-0.1	0.35	2.225	1	0.987	0.984	0.948	0.912
	0.2	-0.2	0.2	2.8375	0	0.99	0.99	0.964	0.935
	0.2	-0.3	0.3	3.1	0	0.994	0.993	0.96	0.929
(0.4,0.6)									
	0.025	0.3	-0.3	0	1	0.826	0.823	0.578	0.54
	0.025	0.2	-0.2	0	0	0.982	0.978	0.896	0.874
	0.025	0.1	-0.1	0	0	0.996	0.996	0.957	0.936
	0.025	0	0	0	0	1	0.999	1	0.975
	0.025	-0.1	0.1	0.05	0	1	0.999	0.987	0.967
	0.025	-0.2	0.2	0.05	0	0.998	0.996	0.979	0.956
	0.025	-0.3	0.3	0.05	0	0.999	0.998	0.977	0.954
	0.05	0.3	-0.3	0.05	0	0.867	0.865	0.613	0.577
	0.05	0.2	-0.15	0.05	0	0.98	0.977	0.878	0.855
	0.05	0.1	-0.05	0.05	0	0.996	0.994	0.971	0.94
	0.05	0	0.05	0.1	0	0.999	0.998	0.999	0.98
	0.05	-0.1	0.15	0.1	0	0.997	0.994	0.988	0.972
	0.05	-0.2	0.25	0.15	1	0.995	0.991	0.975	0.947
	0.05	-0.3	0.35	0.15	0	0.997	0.994	0.967	0.933
	0.075	0.3	-0.25	0.1	0	0.93	0.928	0.713	0.688
	0.075	0.2	-0.15	0.1	0	0.981	0.979	0.911	0.886
	0.075	0.1	0	0.1	0	0.998	0.996	0.973	0.953
	0.075	0	0.1	0.15	0	0.999	0.997	0.984	0.95
	0.075	-0.1	0.2	0.25	0	0.995	0.99	0.969	0.933
	0.075	-0.2	0.35	0.3	0	0.998	0.996	0.975	0.95
	0.075	-0.3	0.45	0.4	0	0.997	0.994	0.97	0.94
	0.1	0.3	-0.2	0.15	0	0.957	0.956	0.81	0.783
	0.1	0.2	-0.1	0.2	0	0.994	0.993	0.921	0.899
	0.1	0.1	0.05	0.25	0	0.999	0.998	0.982	0.96

	0.1	0	0.15	0.35	0	0.998	0.996	0.983	0.961
	0.1	-0.1	0.3	0.45	0	0.999	0.998	0.971	0.94
	0.1	-0.2	0.4	0.7	0	0.997	0.994	0.984	0.968
	0.1	-0.3	0.5	0.7	0	0.999	0.998	0.971	0.942
	0.2	0.3	0	0.725	0	0.987	0.984	0.906	0.871
	0.2	0.2	0	0.7	0	0.992	0.991	0.942	0.922
	0.2	0.1	0.15	1.2	0	0.991	0.99	0.959	0.943
	0.2	0	0.1	2.55	0	0.988	0.985	0.951	0.918
	0.2	-0.1	0.15	2.25	0	0.989	0.988	0.957	0.932
	0.2	-0.2	0	3.1	1	0.988	0.986	0.956	0.925
	0.2	-0.3	-0.1	3.0125	0	0.994	0.994	0.961	0.934
(0.3,0.3)	0.025	0.3	-0.3	0.05	8	0.984	0.984	0.939	0.938
	0.025	0.2	-0.2	0.05	8	0.992	0.992	0.987	0.987
	0.025	0.1	-0.1	0.05	13	0.987	0.987	0.985	0.985
	0.025	0	0.05	0.05	8	0.992	0.992	0.992	0.992
	0.025	-0.1	0.15	0.05	7	0.993	0.993	0.992	0.991
	0.025	-0.2	0.25	0.15	13	0.987	0.987	0.987	0.987
	0.025	-0.3	0.35	0.15	4	0.995	0.994	0.994	0.992
	0.05	0.3	-0.25	0.1	4	0.994	0.994	0.944	0.944
	0.05	0.2	-0.15	0.15	4	0.996	0.996	0.992	0.992
	0.05	0.1	0	0.2	9	0.991	0.991	0.99	0.99
	0.05	0	0.1	0.15	3	0.997	0.997	0.996	0.995
	0.05	-0.1	0.25	0.2	5	0.995	0.995	0.994	0.992
	0.05	-0.2	0.35	0.25	3	0.997	0.997	0.996	0.995
	0.05	-0.3	0.5	0.35	4	0.996	0.996	0.995	0.994
	0.075	0.3	-0.2	0.1	2	0.997	0.997	0.98	0.979
	0.075	0.2	-0.05	0.2	6	0.994	0.994	0.991	0.991
	0.075	0.1	0.1	0.3	5	0.995	0.995	0.995	0.995
	0.075	0	0.25	0.55	1	0.999	0.999	0.999	0.999
	0.075	-0.1	0.45	0.7	9	0.991	0.991	0.99	0.989
	0.075	-0.2	0.65	0.95	5	0.995	0.995	0.995	0.995
	0.075	-0.3	0.45	2.3	7	0.993	0.993	0.993	0.993
	0.1	0.3	-0.1	0.35	6	0.994	0.994	0.985	0.985
	0.1	0.2	0.15	0.525	6	0.994	0.994	0.994	0.994
	0.1	0.1	0.05	1.55	4	0.996	0.996	0.995	0.994
	0.1	0	0.15	1.9	3	0.997	0.997	0.997	0.997
	0.1	-0.1	0.3	2.25	7	0.993	0.993	0.992	0.991
	0.1	-0.2	0.4	2.7	8	0.992	0.992	0.992	0.992
	0.1	-0.3	0.55	3.6	5	0.995	0.995	0.994	0.993
	0.2	0.3	-1	1.55	1	0.927	0.927	0.918	0.916
	0.2	0.2	-1.15	1.65	5	0.905	0.905	0.905	0.905
	0.2	0.1	-1.15	1.75	5	0.88	0.88	0.88	0.88

	0.2	0	-1.2	1.325	2	0.866	0.866	0.866	0.866
	0.2	-0.1	-1.15	0.6	6	0.871	0.871	0.869	0.867
	0.2	-0.2	-1.15	0.7	6	0.875	0.875	0.875	0.875
	0.2	-0.3	-1.05	1.05	4	0.888	0.888	0.887	0.887
(0.8,0.8)	0.025	0.3	-0.3	0	0	0.384	0.294	0.446	0.087
	0.025	0.2	-0.2	0	0	0.738	0.639	0.655	0.294
	0.025	0.1	-0.1	0	0	0.89	0.779	0.827	0.447
	0.025	0	0	0	0	1	0.899	1	0.63
	0.025	-0.1	0.1	0	0	0.892	0.773	0.856	0.481
	0.025	-0.2	0.2	0	0	0.899	0.794	0.741	0.378
	0.025	-0.3	0.3	0	0	0.884	0.768	0.661	0.277
	0.05	0.3	-0.3	0.05	0	0.418	0.322	0.462	0.101
	0.05	0.2	-0.2	0.05	0	0.729	0.636	0.665	0.301
	0.05	0.1	-0.1	0.05	0	0.934	0.825	0.85	0.481
	0.05	0	0	0.05	0	0.963	0.837	0.99	0.607
	0.05	-0.1	0.1	0.05	0	0.908	0.809	0.806	0.438
	0.05	-0.2	0.2	0.05	0	0.901	0.799	0.702	0.326
	0.05	-0.3	0.3	0.05	0	0.878	0.756	0.639	0.241
	0.075	0.3	-0.25	0.05	1	0.496	0.395	0.515	0.134
	0.075	0.2	-0.15	0.05	0	0.777	0.676	0.667	0.319
	0.075	0.1	-0.05	0.1	0	0.962	0.85	0.842	0.474
	0.075	0	0.05	0.1	0	0.941	0.838	0.931	0.546
	0.075	-0.1	0.15	0.1	0	0.883	0.761	0.793	0.405
	0.075	-0.2	0.25	0.15	0	0.88	0.76	0.689	0.31
	0.075	-0.3	0.3	0.2	0	0.906	0.812	0.676	0.332
	0.1	0.3	-0.25	0.05	0	0.608	0.49	0.545	0.174
	0.1	0.2	-0.15	0.1	0	0.831	0.714	0.74	0.36
	0.1	0.1	0	0.15	0	0.924	0.789	0.853	0.462
	0.1	0	0.05	0.15	0	0.915	0.801	0.853	0.465
	0.1	-0.1	0.2	0.2	0	0.892	0.774	0.787	0.428
	0.1	-0.2	0.25	0.25	0	0.911	0.821	0.706	0.357
	0.1	-0.3	0.35	0.3	0	0.872	0.744	0.614	0.195
	0.2	0.3	-0.05	0.4	0	0.781	0.678	0.633	0.27
	0.2	0.2	0.05	0.45	0	0.84	0.723	0.659	0.291
	0.2	0.1	0.1	0.6	0	0.863	0.758	0.702	0.322
	0.2	0	0.2	0.7	0	0.875	0.761	0.686	0.297
	0.2	-0.1	0.3	0.85	0	0.907	0.813	0.662	0.294
	0.2	-0.2	0.3	0.95	0	0.888	0.779	0.681	0.32
	0.2	-0.3	0.35	1.05	0	0.884	0.771	0.667	0.309
(0.5,0.5)	0.025	0.3	-0.3	0	0	0.866	0.864	0.58	0.561
	0.025	0.2	-0.2	0	0	0.973	0.972	0.873	0.845

0.025	0.1	-0.1	0	0	0.992	0.991	0.966	0.946
0.025	0	0	0	0	1	0.999	1	0.978
0.025	-0.1	0.1	0.05	0	1	1	0.986	0.967
0.025	-0.2	0.2	0.05	0	0.998	0.996	0.981	0.96
0.025	-0.3	0.3	0.05	1	0.997	0.995	0.97	0.94
0.05	0.3	-0.3	0.05	0	0.886	0.884	0.613	0.589
0.05	0.2	-0.15	0.05	0	0.978	0.976	0.886	0.862
0.05	0.1	-0.05	0.1	0	1	1	0.95	0.935
0.05	0	0.05	0.1	0	0.995	0.99	0.997	0.962
0.05	-0.1	0.15	0.1	0	1	1	0.982	0.962
0.05	-0.2	0.25	0.15	0	0.996	0.992	0.971	0.941
0.05	-0.3	0.35	0.2	0	0.997	0.994	0.975	0.949
0.075	0.3	-0.25	0.1	0	0.935	0.934	0.74	0.715
0.075	0.2	-0.15	0.05	0	0.984	0.979	0.914	0.889
0.075	0.1	0	0.15	1	0.996	0.992	0.973	0.943
0.075	0	0.1	0.1625	0	0.997	0.994	0.988	0.965
0.075	-0.1	0.2	0.25	0	1	1	0.982	0.963
0.075	-0.2	0.35	0.35	0	0.999	0.998	0.97	0.939
0.075	-0.3	0.45	0.4	0	1	1	0.973	0.946
0.1	0.3	-0.2	0.15	0	0.963	0.962	0.817	0.794
0.1	0.2	-0.1	0.2	1	0.991	0.99	0.938	0.912
0.1	0.1	0.05	0.3	0	0.997	0.994	0.985	0.959
0.1	0	0.15	0.4	0	0.997	0.994	0.988	0.969
0.1	-0.1	0.3	0.5625	0	1	1	0.983	0.965
0.1	-0.2	0.45	0.7	0	1	1	0.98	0.96
0.1	-0.3	0.55	1	0	0.997	0.994	0.975	0.95
0.2	0.3	0.05	1.025	1	0.985	0.982	0.931	0.904
0.2	0.2	0.1	0.85	0	0.985	0.977	0.936	0.902
0.2	0.1	0.2	1.65	0	0.992	0.99	0.965	0.941
0.2	0	0	2.55	0	0.992	0.99	0.958	0.936
0.2	-0.1	0.1	2.6	2	0.987	0.984	0.958	0.928
0.2	-0.2	-0.05	3.1	0	0.989	0.989	0.963	0.941
0.2	-0.3	-0.1	3.1	1	0.986	0.982	0.957	0.931

Table A3-1: 3 inspectors, 10 defects and 0.1 degree of difficulty.

3 ins/10 def/0.1 diff

(0.25,0.50,0.75)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.3	0	212	0.779	0.779	0.757	0.756
0.025	0.2	-0.2	0	222	0.778	0.778	0.772	0.772
0.025	0.1	-0.1	0	214	0.786	0.786	0.786	0.784
0.025	0	0.1	0.1	213	0.787	0.787	0.787	0.786

0.025	-0.1	0.2	0.1	205	0.795	0.795	0.795	0.795
0.025	-0.2	0.3	0.1	220	0.78	0.78	0.779	0.778
0.025	-0.3	0.5	0.2	235	0.765	0.765	0.765	0.765
0.05	0.3	-0.2	0.1	235	0.757	0.757	0.723	0.722
0.05	0.2	0	0.2	215	0.785	0.785	0.776	0.775
0.05	0.1	0.1	0.1	223	0.777	0.777	0.777	0.777
0.05	0	0.4	0.3	214	0.786	0.785	0.785	0.783
0.05	-0.1	0.6	0.4	200	0.8	0.8	0.8	0.8
0.05	-0.2	1	0.7	206	0.794	0.794	0.794	0.794
0.05	-0.3	1.4	0.9	227	0.773	0.773	0.771	0.769
0.075	0.3	0	0.2	215	0.783	0.783	0.763	0.762
0.075	0.2	0.3	0.4	208	0.792	0.792	0.789	0.786
0.075	0.1	0.9	0.8	213	0.787	0.787	0.787	0.786
0.075	0	1.8	1.6	204	0.796	0.796	0.796	0.796
0.075	-0.1	4.2	3.8	215	0.785	0.785	0.785	0.785
0.075	-0.2	22.9	22.4	203	0.797	0.797	0.796	0.795
0.075	-0.3	-10.9	11.3	225	0.775	0.775	0.775	0.775
0.1	0.3	0.7	0.9	210	0.789	0.789	0.777	0.776
0.1	0.2	2.7	2.7	195	0.804	0.804	0.803	0.801
0.1	0.1	-58.3	58.3	221	0.779	0.779	0.778	0.776
0.1	0	-4.4	4.6	221	0.779	0.779	0.778	0.777
0.1	-0.1	-2.7	3	198	0.802	0.802	0.801	0.8
0.1	-0.2	-2.2	2.7	218	0.782	0.782	0.781	0.78
0.1	-0.3	-1.9	2.5	212	0.788	0.788	0.788	0.788
0.2	0.3	-1.1	1.1	244	0.756	0.756	0.755	0.753
0.2	0.2	-1	6.8	223	0.435	0.435	0.434	0.433
0.2	0.1	-1	0.1	209	0.452	0.452	0.45	0.448
0.2	0	-1	0	228	0.279	0.279	0.279	0.279
0.2	-0.1	-1	0.1	191	0.307	0.307	0.305	0.303
0.2	-0.2	-1	0.4	190	0.316	0.316	0.315	0.314
0.2	-0.3	-1	0.3	226	0.312	0.312	0.312	0.312

(0.4,0.5,0.6)

0.025	0.3	-0.3	0	191	0.805	0.804	0.766	0.765
0.025	0.2	-0.2	0	218	0.782	0.782	0.773	0.773
0.025	0.1	-0.1	0	243	0.757	0.757	0.757	0.757
0.025	0	0.1	0.1	184	0.816	0.816	0.816	0.815
0.025	-0.1	0.2	0.1	217	0.783	0.783	0.783	0.783
0.025	-0.2	0.3	0.1	218	0.782	0.782	0.782	0.782
0.025	-0.3	0.5	0.2	218	0.782	0.782	0.781	0.78
0.05	0.3	-0.2	0.1	209	0.781	0.781	0.743	0.742
0.05	0.2	0	0.2	213	0.786	0.786	0.782	0.781
0.05	0.1	0.1	0.1	209	0.791	0.791	0.791	0.789
0.05	0	0.4	0.3	229	0.771	0.771	0.77	0.769

0.05	-0.1	0.6	0.4	201	0.799	0.799	0.799	0.799
0.05	-0.2	1	0.7	217	0.783	0.783	0.782	0.781
0.05	-0.3	1.4	0.9	209	0.791	0.791	0.79	0.789
0.075	0.3	0	0.2	243	0.751	0.751	0.734	0.731
0.075	0.2	0.3	0.4	199	0.801	0.801	0.801	0.8
0.075	0.1	0.9	0.9	208	0.792	0.791	0.792	0.791
0.075	0	1.8	1.8	211	0.789	0.789	0.788	0.787
0.075	-0.1	4.2	3.8	180	0.82	0.82	0.819	0.818
0.075	-0.2	22.9	22.3	221	0.777	0.775	0.776	0.772
0.075	-0.3	-10.9	11.4	219	0.781	0.781	0.781	0.781
0.1	0.3	0.7	0.8	201	0.797	0.797	0.791	0.789
0.1	0.2	2.7	2.7	200	0.8	0.8	0.8	0.8
0.1	0.1	-58.3	58.3	202	0.798	0.798	0.797	0.795
0.1	0	-4.4	4.5	206	0.794	0.794	0.793	0.792
0.1	-0.1	-2.7	3.075	226	0.773	0.772	0.773	0.771
0.1	-0.2	-2.2	2.675	198	0.802	0.802	0.802	0.802
0.1	-0.3	-1.9	2.4	217	0.783	0.783	0.781	0.779
0.2	0.3	-1.1	1	203	0.797	0.797	0.794	0.794
0.2	0.2	-1	0.1	242	0.442	0.442	0.439	0.438
0.2	0.1	-1	0.2	223	0.435	0.435	0.435	0.435
0.2	0	-1	0	219	0.284	0.284	0.284	0.284
0.2	-0.1	-1	0.1	219	0.31	0.31	0.309	0.308
0.2	-0.2	-1	0.4	211	0.302	0.302	0.3	0.298
0.2	-0.3	-1	0.1	238	0.273	0.273	0.272	0.271

(0.3,0.5,0.3)

0.025	0.3	-0.3	0	330	0.666	0.666	0.655	0.655
0.025	0.2	-0.2	0	306	0.693	0.693	0.691	0.69
0.025	0.1	-0.1	0	332	0.668	0.668	0.668	0.668
0.025	0	0.1	0.1	313	0.687	0.687	0.687	0.687
0.025	-0.1	0.2	0	330	0.67	0.67	0.67	0.67
0.025	-0.2	0.3	0	294	0.706	0.706	0.706	0.706
0.025	-0.3	0.5	0.2	310	0.69	0.69	0.69	0.69
0.05	0.3	-0.2	0	329	0.67	0.67	0.66	0.66
0.05	0.2	0	0.2	310	0.69	0.69	0.687	0.687
0.05	0.1	0.1	0	314	0.686	0.686	0.686	0.686
0.05	0	0.4	0	337	0.663	0.663	0.663	0.663
0.05	-0.1	0.6	0	312	0.688	0.688	0.688	0.688
0.05	-0.2	1	0.6	342	0.658	0.658	0.658	0.658
0.05	-0.3	1.4	0	311	0.689	0.689	0.689	0.689
0.075	0.3	0	0	324	0.676	0.676	0.666	0.666
0.075	0.2	0.3	0	314	0.686	0.685	0.686	0.685
0.075	0.1	0.9	0	345	0.655	0.655	0.655	0.655
0.075	0	1.8	0	347	0.653	0.653	0.653	0.653

	0.075	-0.1	4.2	3.7	331	0.669	0.669	0.669	0.669
	0.075	-0.2	22.9	0	310	0.69	0.69	0.69	0.69
	0.075	-0.3	-10.9	0	356	0.644	0.644	0.644	0.644
	0.1	0.3	0.7	0.8	330	0.67	0.67	0.669	0.669
	0.1	0.2	2.7	0	315	0.685	0.684	0.685	0.683
	0.1	0.1	-58.3	0	304	0.696	0.696	0.696	0.696
	0.1	0	-4.4	4.4	315	0.685	0.685	0.685	0.685
	0.1	-0.1	-2.7	2.8	338	0.662	0.662	0.661	0.66
	0.1	-0.2	-2.2	0	318	0.682	0.682	0.682	0.682
	0.1	-0.3	-1.9	0	321	0.679	0.679	0.679	0.679
	0.2	0.3	-1.1	0	351	0.649	0.649	0.649	0.649
	0.2	0.2	-1	0.1	345	0.281	0.281	0.281	0.281
	0.2	0.1	-1	0.1	303	0.313	0.313	0.313	0.313
	0.2	0	-1	0	310	0.188	0.188	0.188	0.188
	0.2	-0.1	-1	0	338	0.162	0.162	0.162	0.162
	0.2	-0.2	-1	0	304	0.178	0.178	0.178	0.178
	0.2	-0.3	-1	0	330	0.187	0.187	0.187	0.187
(0.8,0.5,0.8)									
	0.025	0.3	-0.3	0	106	0.869	0.869	0.783	0.778
	0.025	0.2	-0.2	0	119	0.878	0.877	0.861	0.857
	0.025	0.1	-0.1	0	102	0.898	0.897	0.898	0.887
	0.025	0	0.1	0.1	123	0.877	0.877	0.877	0.874
	0.025	-0.1	0.2	0.1	105	0.895	0.895	0.89	0.885
	0.025	-0.2	0.3	0.1	114	0.884	0.882	0.879	0.87
	0.025	-0.3	0.5	0.2	104	0.896	0.896	0.89	0.884
	0.05	0.3	-0.2	0.1	102	0.87	0.869	0.793	0.79
	0.05	0.2	0	0.2	100	0.895	0.893	0.878	0.871
	0.05	0.1	0.05	0.2	106	0.894	0.894	0.894	0.887
	0.05	0	0.4	0.3	104	0.896	0.896	0.893	0.888
	0.05	-0.1	0.6	0.4	107	0.893	0.893	0.886	0.879
	0.05	-0.2	1	0.7	109	0.89	0.889	0.887	0.882
	0.05	-0.3	1.4	0.9	106	0.893	0.892	0.891	0.888
	0.075	0.3	0	0.2	98	0.889	0.888	0.842	0.838
	0.075	0.2	0.3	0.4	124	0.874	0.874	0.863	0.855
	0.075	0.1	0.9	0.9	113	0.887	0.887	0.884	0.876
	0.075	0	1.8	1.8	124	0.876	0.876	0.874	0.871
	0.075	-0.1	0.5	3.9	109	0.891	0.891	0.886	0.881
	0.075	-0.2	22.9	22.4	127	0.87	0.867	0.86	0.847
	0.075	-0.3	-10.9	11.7	115	0.885	0.885	0.883	0.881
	0.1	0.3	0.7	0.9	104	0.891	0.891	0.862	0.857
	0.1	0.2	2.7	3.1	110	0.89	0.89	0.886	0.881
	0.1	0.1	-58.3	58.5	109	0.891	0.891	0.888	0.883
	0.1	0	-4.4	4.8	123	0.877	0.877	0.872	0.866

	0.1	-0.1	-2.7	3.4	110	0.889	0.888	0.884	0.877
	0.1	-0.2	-2.2	3.3	108	0.89	0.888	0.887	0.881
	0.1	-0.3	-1.9	3.5	113	0.887	0.887	0.88	0.873
	0.2	0.3	-1.1	3.7	106	0.892	0.89	0.886	0.881
	0.2	0.2	-1.1	6.8	100	0.646	0.644	0.637	0.628
	0.2	0.1	-1.1	1.7	119	0.63	0.629	0.623	0.616
	0.2	0	-1	0.9	100	0.477	0.475	0.47	0.462
	0.2	-0.1	-1	0.6	118	0.443	0.443	0.44	0.439
	0.2	-0.2	-1	0.4	101	0.458	0.458	0.455	0.453
	0.2	-0.3	-1	0.3	115	0.483	0.483	0.474	0.465
(0.5,0.5,0.5)									
	0.025	0.3	-0.3	0	225	0.762	0.762	0.734	0.733
	0.025	0.2	-0.2	0	209	0.79	0.79	0.784	0.783
	0.025	0.1	-0.1	0.1	211	0.789	0.789	0.789	0.786
	0.025	0	0.1	0.1	221	0.779	0.779	0.779	0.779
	0.025	-0.1	0.2	0.1	210	0.79	0.79	0.789	0.788
	0.025	-0.2	0.3	0.1	192	0.808	0.808	0.807	0.806
	0.025	-0.3	0.5	0.2	213	0.787	0.787	0.786	0.785
	0.05	0.3	-0.2	0.1	203	0.787	0.787	0.749	0.748
	0.05	0.2	0	0.2	230	0.769	0.769	0.766	0.764
	0.05	0.1	0.1	0.1	218	0.782	0.782	0.782	0.782
	0.05	0	0.4	0.3	223	0.777	0.776	0.777	0.775
	0.05	-0.1	0.6	0.4	209	0.791	0.791	0.79	0.789
	0.05	-0.2	1	0.7	211	0.789	0.789	0.788	0.787
	0.05	-0.3	1.4	0.9	221	0.779	0.779	0.778	0.777
	0.075	0.3	0	0.2	225	0.773	0.773	0.756	0.755
	0.075	0.2	0.3	0.4	233	0.766	0.766	0.766	0.765
	0.075	0.1	0.9	0.8	220	0.78	0.78	0.78	0.78
	0.075	0	1.8	1.6	217	0.783	0.783	0.781	0.779
	0.075	-0.1	4.2	3.8	244	0.756	0.756	0.756	0.756
	0.075	-0.2	22.9	22.3	227	0.773	0.773	0.768	0.763
	0.075	-0.3	-10.9	11.3	211	0.789	0.789	0.789	0.789
	0.1	0.3	0.7	1	224	0.774	0.774	0.763	0.762
	0.1	0.2	2.7	2.7	238	0.762	0.762	0.762	0.762
	0.1	0.1	-58.3	58.3	194	0.806	0.806	0.803	0.799
	0.1	0	-4.4	4.5	248	0.752	0.752	0.751	0.75
	0.1	-0.1	-2.7	3	220	0.78	0.78	0.78	0.78
	0.1	-0.2	-2.2	2.5	202	0.798	0.798	0.798	0.798
	0.1	-0.3	-1.9	2.5	216	0.784	0.784	0.781	0.778
	0.2	0.3	-1.1	1	226	0.774	0.774	0.774	0.774
	0.2	0.2	-1	0.1	218	0.436	0.436	0.436	0.436
	0.2	0.1	-1	0.2	193	0.468	0.468	0.467	0.465
	0.2	0	-1	0.2	210	0.283	0.283	0.282	0.281

0.2	-0.1	-1	0.1	216	0.297	0.297	0.296	0.295
0.2	-0.2	-1	0.4	231	0.275	0.275	0.274	0.273
0.2	-0.3	-1	0.1	197	0.297	0.297	0.295	0.293

Table A3-2: 3 inspectors, 20 defects and 0.1 degree of difficulty.

3 ins/20 def/0.1 dif

(0.25,0.50,0.75)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.25	0.1	43	0.957	0.957	0.954	0.954
0.025	0.2	-0.15	0.15	44	0.956	0.956	0.956	0.956
0.025	0.1	-0.05	0.2	42	0.958	0.958	0.958	0.958
0.025	0	0.1	0.3	40	0.96	0.96	0.96	0.96
0.025	-0.1	0.2	0.45	41	0.959	0.959	0.959	0.959
0.025	-0.2	0.35	0.65	37	0.963	0.963	0.963	0.963
0.025	-0.3	0.45	0.95	50	0.95	0.95	0.95	0.95
0.05	0.3	-0.2	0.75	53	0.947	0.947	0.945	0.945
0.05	0.2	0	1.75	42	0.958	0.958	0.958	0.958
0.05	0.1	0.15	7.6	53	0.947	0.947	0.947	0.947
0.05	0	0.05	9.8	46	0.954	0.954	0.954	0.954
0.05	-0.1	0.2	4.6	47	0.953	0.953	0.953	0.953
0.05	-0.2	0.35	3.8	49	0.951	0.951	0.951	0.951
0.05	-0.3	0.5	3.75	42	0.958	0.958	0.958	0.958
0.075	0.3	-0.2	3.1	41	0.959	0.959	0.959	0.959
0.075	0.2	-0.05	2.35	36	0.964	0.964	0.964	0.964
0.075	0.1	0.15	2.6	49	0.951	0.951	0.951	0.951
0.075	0	0.25	3.25	40	0.96	0.96	0.96	0.96
0.075	-0.1	0.65	5.95	41	0.959	0.959	0.959	0.959
0.075	-0.2	0.65	25.275	41	0.959	0.959	0.959	0.959
0.075	-0.3	-1.3	11.45	55	0.945	0.945	0.945	0.945
0.1	0.3	-0.05	2.05	37	0.963	0.963	0.963	0.963
0.1	0.2	0.1	4.35	45	0.955	0.955	0.955	0.955
0.1	0.1	-1.25	65.6	44	0.956	0.956	0.956	0.956
0.1	0	-1.2	4.55	41	0.959	0.959	0.959	0.959
0.1	-0.1	-1.15	3.3	46	0.954	0.954	0.954	0.954
0.1	-0.2	-1.1	2.85	41	0.959	0.959	0.959	0.959
0.1	-0.3	-1.1	2.4	36	0.964	0.964	0.964	0.964
0.2	0.3	-1.05	0.4	53	0.677	0.677	0.676	0.676
0.2	0.2	-1.05	0.35	53	0.66	0.66	0.66	0.66
0.2	0.1	-1	0.3	35	0.56	0.56	0.56	0.56
0.2	0	-1	0.2	48	0.566	0.566	0.566	0.566
0.2	-0.1	-1	0.25	48	0.528	0.528	0.527	0.527
0.2	-0.2	-1	0.2	41	0.568	0.568	0.568	0.568

	0.2	-0.3	-1	0.2	44	0.548	0.548	0.547	0.547
(0.4,0.5,0.6)									
	0.025	0.3	-0.25	0.1	34	0.965	0.965	0.959	0.959
	0.025	0.2	-0.15	0.15	51	0.949	0.949	0.949	0.949
	0.025	0.1	-0.05	0.2	45	0.955	0.955	0.955	0.955
	0.025	0	0.1	0.3	38	0.962	0.962	0.962	0.962
	0.025	-0.1	0.2	0.45	44	0.956	0.956	0.956	0.956
	0.025	-0.2	0.35	0.65	43	0.957	0.957	0.957	0.957
	0.025	-0.3	0.45	0.9	45	0.955	0.955	0.955	0.955
	0.05	0.3	-0.2	0.7	55	0.945	0.945	0.944	0.944
	0.05	0.2	0	1.75	52	0.948	0.948	0.948	0.948
	0.05	0.1	0.15	7.55	42	0.958	0.958	0.958	0.958
	0.05	0	0.075	9.85	44	0.956	0.956	0.956	0.956
	0.05	-0.1	0.2	4.6	37	0.963	0.963	0.963	0.963
	0.05	-0.2	0.35	3.8	41	0.959	0.959	0.959	0.959
	0.05	-0.3	0.5	3.75	46	0.954	0.954	0.954	0.954
	0.075	0.3	-0.2	3.15	52	0.948	0.948	0.948	0.948
	0.075	0.2	-0.05	2.35	41	0.959	0.959	0.959	0.959
	0.075	0.1	0.15	2.6	49	0.951	0.951	0.951	0.951
	0.075	0	0.4	3.45	51	0.949	0.949	0.949	0.949
	0.075	-0.1	0.45	5.95	37	0.963	0.963	0.963	0.963
	0.075	-0.2	0.75	26.3	39	0.961	0.961	0.961	0.961
	0.075	-0.3	-1.3	12.25	46	0.954	0.954	0.954	0.954
	0.1	0.3	-0.15	2.2	57	0.943	0.943	0.943	0.943
	0.1	0.2	0.05	4.35	36	0.964	0.964	0.964	0.964
	0.1	0.1	-1.25	65.6	38	0.962	0.962	0.962	0.962
	0.1	0	-1.2	5	51	0.949	0.949	0.949	0.949
	0.1	-0.1	-1.15	3.3	54	0.946	0.946	0.946	0.946
	0.1	-0.2	-1.1	2.75	52	0.948	0.948	0.948	0.948
	0.1	-0.3	-1.1	2.4	52	0.948	0.948	0.948	0.948
	0.2	0.3	-1.05	0.25	42	0.673	0.673	0.673	0.673
	0.2	0.2	-1.05	0.35	60	0.653	0.653	0.653	0.653
	0.2	0.1	-1	0.3	57	0.513	0.513	0.513	0.513
	0.2	0	-1	0.25	58	0.523	0.523	0.523	0.523
	0.2	-0.1	-1	0.25	41	0.543	0.543	0.543	0.543
	0.2	-0.2	-1	0.2	54	0.534	0.534	0.532	0.532
	0.2	-0.3	-1	0.15	60	0.545	0.545	0.542	0.542
(0.3,0.5,0.3)									
	0.025	0.3	-0.2	0.1	96	0.904	0.904	0.904	0.904
	0.025	0.2	-0.15	0.1	88	0.912	0.912	0.912	0.912
	0.025	0.1	-0.05	0.2	106	0.894	0.894	0.894	0.894
	0.025	0	0.35	0.3	93	0.907	0.907	0.907	0.907
	0.025	-0.1	0.6	0.4	90	0.91	0.91	0.91	0.91

0.025	-0.2	0.35	0.6	113	0.887	0.887	0.887	0.887
0.025	-0.3	0.5	0.85	125	0.875	0.875	0.875	0.875
0.05	0.3	0.5	0.7	97	0.903	0.903	0.902	0.902
0.05	0.2	1.65	1.85	103	0.897	0.897	0.897	0.897
0.05	0.1	0.2	7.45	112	0.888	0.888	0.888	0.888
0.05	0	-9.45	9.8	114	0.886	0.886	0.886	0.886
0.05	-0.1	-3.95	4.75	99	0.901	0.901	0.901	0.901
0.05	-0.2	-2.8	3.9	103	0.897	0.897	0.897	0.897
0.05	-0.3	0.3	3.7	108	0.892	0.892	0.892	0.892
0.075	0.3	-3.1	3.1	114	0.886	0.886	0.886	0.886
0.075	0.2	-1.95	2.3	129	0.871	0.871	0.871	0.871
0.075	0.1	-0.1	2.5	101	0.899	0.899	0.899	0.899
0.075	0	0	3.25	123	0.877	0.877	0.877	0.877
0.075	-0.1	0.1	5.55	95	0.905	0.905	0.905	0.905
0.075	-0.2	0.2	24.25	109	0.891	0.891	0.891	0.891
0.075	-0.3	-1.3	9.75	96	0.904	0.904	0.904	0.904
0.1	0.3	-0.3	2.05	110	0.89	0.89	0.89	0.89
0.1	0.2	-1.25	3.95	116	0.884	0.884	0.884	0.884
0.1	0.1	-1.25	57.2	89	0.911	0.911	0.911	0.911
0.1	0	-1.2	3.35	121	0.879	0.879	0.879	0.879
0.1	-0.1	-1.15	1.7	102	0.898	0.898	0.898	0.898
0.1	-0.2	-1.1	1.15	113	0.887	0.887	0.887	0.887
0.1	-0.3	-1.1	0.85	101	0.899	0.899	0.899	0.899
0.2	0.3	-1	0.25	98	0.467	0.467	0.467	0.467
0.2	0.2	-1	0.2	107	0.476	0.476	0.476	0.476
0.2	0.1	-1	0.2	105	0.341	0.341	0.341	0.341
0.2	0	-1	0.15	107	0.372	0.372	0.372	0.372
0.2	-0.1	-1	0.1	108	0.333	0.333	0.333	0.333
0.2	-0.2	-1	0.1	103	0.364	0.364	0.362	0.362
0.2	-0.3	-1	0.1	112	0.349	0.349	0.347	0.347

(0.8,0.5,0.8)

0.025	0.3	-0.3	0.05	18	0.98	0.98	0.952	0.952
0.025	0.2	-0.2	0.05	15	0.985	0.985	0.983	0.983
0.025	0.1	-0.05	0.05	15	0.985	0.985	0.984	0.983
0.025	0	0.05	0.1	10	0.99	0.99	0.99	0.99
0.025	-0.1	0.2	0.05	11	0.989	0.989	0.989	0.989
0.025	-0.2	0.3	0.1	19	0.981	0.981	0.981	0.981
0.025	-0.3	0.45	0.15	22	0.978	0.978	0.977	0.976
0.05	0.3	-0.2	0.1	10	0.99	0.99	0.98	0.98
0.05	0.2	-0.05	0.15	17	0.983	0.983	0.981	0.981
0.05	0.1	0.15	0.25	14	0.986	0.986	0.986	0.986
0.05	0	0.15	0.4	12	0.988	0.988	0.988	0.988
0.05	-0.1	0.3	0.55	11	0.989	0.989	0.989	0.989

	0.05	-0.2	0.45	0.8	17	0.983	0.983	0.983	0.983
	0.05	-0.3	0.6	1.1	18	0.982	0.982	0.982	0.982
	0.075	0.3	-0.2	0.35	14	0.986	0.986	0.98	0.98
	0.075	0.2	0	0.55	8	0.992	0.992	0.992	0.992
	0.075	0.1	0.2	1.05	19	0.981	0.981	0.981	0.981
	0.075	0	0.45	1.95	13	0.987	0.987	0.987	0.987
	0.075	-0.1	0.65	4.45	14	0.986	0.986	0.986	0.986
	0.075	-0.2	0.9	22.7	11	0.989	0.989	0.989	0.989
	0.075	-0.3	-0.05	12.8	8	0.992	0.992	0.992	0.992
	0.1	0.3	-0.05	1.1	9	0.991	0.991	0.99	0.99
	0.1	0.2	0.2	3.3	15	0.985	0.985	0.985	0.985
	0.1	0.1	-0.35	65.925	9	0.991	0.991	0.991	0.991
	0.1	0	-0.25	5.45	13	0.987	0.987	0.987	0.987
	0.1	-0.1	-1.1	3.9	11	0.989	0.989	0.989	0.989
	0.1	-0.2	-0.45	3.5	7	0.993	0.993	0.993	0.993
	0.1	-0.3	-1.05	3.95	14	0.986	0.986	0.986	0.986
	0.2	0.3	-1.1	1.1	10	0.85	0.85	0.848	0.848
	0.2	0.2	-1.15	0.5	8	0.847	0.847	0.846	0.846
	0.2	0.1	-1.15	0.675	17	0.766	0.766	0.764	0.764
	0.2	0	-1.1	0.5	16	0.77	0.77	0.767	0.767
	0.2	-0.1	-1.05	0.35	14	0.755	0.755	0.755	0.755
	0.2	-0.2	-1.05	0.35	11	0.773	0.773	0.769	0.769
	0.2	-0.3	-1.05	0.3	16	0.743	0.743	0.742	0.742
(0.5,0.5,0.5)									
	0.025	0.3	-0.25	0.1	57	0.943	0.943	0.939	0.939
	0.025	0.2	-0.15	0.15	46	0.954	0.954	0.954	0.954
	0.025	0.1	-0.05	0.2	44	0.956	0.956	0.956	0.956
	0.025	0	0.1	0.3	48	0.952	0.952	0.952	0.952
	0.025	-0.1	0.2	0.45	54	0.946	0.946	0.946	0.946
	0.025	-0.2	0.35	0.65	42	0.958	0.958	0.958	0.958
	0.025	-0.3	0.5	0.9	47	0.953	0.953	0.953	0.953
	0.05	0.3	-0.2	0.75	43	0.957	0.957	0.956	0.956
	0.05	0.2	0	1.75	39	0.961	0.961	0.961	0.961
	0.05	0.1	0.15	7.55	41	0.959	0.959	0.959	0.959
	0.05	0	0.1	9.85	48	0.952	0.952	0.952	0.952
	0.05	-0.1	0.25	4.6	54	0.946	0.946	0.946	0.946
	0.05	-0.2	0.35	3.8	43	0.957	0.957	0.957	0.957
	0.05	-0.3	0.6	3.75	60	0.94	0.94	0.94	0.94
	0.075	0.3	-0.2	3.15	43	0.957	0.957	0.956	0.956
	0.075	0.2	-0.1	2.35	44	0.956	0.956	0.956	0.956
	0.075	0.1	0.05	2.6	37	0.963	0.963	0.963	0.963
	0.075	0	0.4	3.45	43	0.957	0.957	0.957	0.957
	0.075	-0.1	0.35	5.95	49	0.951	0.951	0.951	0.951

0.075	-0.2	1	26.3	39	0.961	0.961	0.961	0.961
0.075	-0.3	-1.3	12.25	44	0.956	0.956	0.956	0.956
0.1	0.3	-0.05	2.2	46	0.954	0.954	0.954	0.954
0.1	0.2	0.05	4.35	46	0.954	0.954	0.954	0.954
0.1	0.1	-1.25	65.55	52	0.948	0.948	0.948	0.948
0.1	0	-1.2	4.95	53	0.947	0.947	0.947	0.947
0.1	-0.1	-1.15	3.3	39	0.961	0.961	0.961	0.961
0.1	-0.2	-1.1	2.65	48	0.952	0.952	0.952	0.952
0.1	-0.3	-1.1	2.4	40	0.96	0.96	0.96	0.96
0.2	0.3	-1.1	0.4	46	0.667	0.667	0.667	0.667
0.2	0.2	-1.05	0.35	42	0.655	0.655	0.655	0.655
0.2	0.1	-1	0.3	36	0.546	0.546	0.546	0.546
0.2	0	-1	0.25	40	0.563	0.563	0.563	0.563
0.2	-0.1	-1	0.25	50	0.534	0.534	0.534	0.534
0.2	-0.2	-1	0.2	57	0.544	0.544	0.543	0.543
0.2	-0.3	-1	0.2	40	0.541	0.541	0.537	0.537

Table A3-3: 3 inspectors, 30 defects and 0.1 degree of difficulty.

3ins/30 def/0.1 dif

(0.25, 0.50, 0.75)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.266666667	0.066666667	0	0.993	0.993	0.993	0.993
0.025	0.2	-0.166666667	0.066666667	0	0.987	0.987	0.987	0.987
0.025	0.1	-0.033333333	0.1	0	0.994	0.994	0.994	0.994
0.025	0		0.1	0	0.991	0.991	0.991	0.991
0.025	-0.1		0.2	0	0.994	0.994	0.994	0.994
0.025	-0.2	0.366666667		0	0.992	0.992	0.992	0.992
0.025	-0.3	0.466666667		0	0.986	0.986	0.986	0.986
0.05	0.3		-0.2	0	0.99	0.99	0.99	0.99
0.05	0.2	-0.033333333	0.466666667	0	0.986	0.986	0.986	0.986
0.05	0.1	0.133333333	0.833333333	0	0.991	0.991	0.991	0.991
0.05	0	0.366666667	1.533333333	0	0.985	0.985	0.985	0.985
0.05	-0.1	0.633333333	3.166666667	0	0.991	0.991	0.991	0.991
0.05	-0.2	1.033333333		0	0.988	0.988	0.988	0.988
0.05	-0.3	0.333333333	24.96666667	0	0.991	0.991	0.991	0.991
0.075	0.3		0	0	0.993	0.993	0.993	0.993
0.075	0.2		0.4	0	0.99	0.99	0.99	0.99
0.075	0.1	-0.066666667		0	0.993	0.993	0.993	0.993
0.075	0		0.1	0	0.985	0.985	0.985	0.985
0.075	-0.1	0.016666667	7.191666667	0	0.992	0.992	0.992	0.992
0.075	-0.2	0.033333333	7.933333333	0	0.991	0.991	0.991	0.991
0.075	-0.3		-6	0	0.989	0.989	0.989	0.989

0.1	0.3	-0.233333333	4	0	0.99	0.99	0.99	0.99
0.1	0.2	-0.2	4.366666667	0	0.993	0.993	0.993	0.993
0.1	0.1	-3.3	4.266666667	0	0.987	0.987	0.987	0.987
0.1	0	-3.3	4.3	0	0.991	0.991	0.991	0.991
0.1	-0.1	-3.3	4.433333333	0	0.991	0.991	0.991	0.991
0.1	-0.2	-3.633333333	2.833333333	0	0.99	0.99	0.99	0.99
0.1	-0.3	-3.633333333	2.833333333	0	0.993	0.993	0.993	0.993
0.2	0.3	-1.466666667	0.766666667	0	0.99	0.99	0.99	0.99
0.2	0.2	-1.633333333	0.766666667	0	0.987	0.987	0.987	0.987
0.2	0.1	-1.466666667	0.766666667	0	0.988	0.988	0.988	0.988
0.2	0	-1.633333333	0.766666667	0	0.992	0.992	0.992	0.992
0.2	-0.1	-1.466666667	0.766666667	0	0.992	0.992	0.991	0.991
0.2	-0.2	-1.633333333	0.766666667	0	0.988	0.988	0.988	0.988
0.2	-0.3	-1.633333333	0.766666667	0	0.994	0.994	0.994	0.994
(0.4, 0.5, 0.6)								
0.025	0.3	-0.266666667	0.033333333	0	0.989	0.989	0.989	0.989
0.025	0.2	-0.133333333	0.066666667	0	0.991	0.991	0.991	0.991
0.025	0.1	-0.033333333	0.1	0	0.993	0.993	0.993	0.993
0.025	0	0.1	0.166666667	0	0.986	0.986	0.986	0.986
0.025	-0.1	0.233333333	0.2	0	0.994	0.994	0.994	0.994
0.025	-0.2	0.366666667	0.3	0	0.993	0.993	0.993	0.993
0.025	-0.3	0.466666667	0.4	0	0.989	0.989	0.989	0.989
0.05	0.3	-0.166666667	0.3	0	0.99	0.99	0.99	0.99
0.05	0.2	0	0.5	0	0.986	0.986	0.986	0.986
0.05	0.1	0.166666667	0.9	0	0.988	0.988	0.988	0.988
0.05	0	0.433333333	1.633333333	0	0.992	0.992	0.992	0.992
0.05	-0.1	0.666666667	3.366666667	0	0.986	0.986	0.986	0.986
0.05	-0.2	1.033333333	10.8	0	0.988	0.988	0.988	0.988
0.05	-0.3	0.3	24.96666667	0	0.99	0.99	0.99	0.99
0.075	0.3	0.066666667	1.866666667	0	0.985	0.985	0.985	0.985
0.075	0.2	0.4	16.43333333	0	0.985	0.985	0.985	0.985
0.075	0.1	-0.15	6.433333333	0	0.988	0.988	0.988	0.988
0.075	0	-0.183333333	6.8	0	0.994	0.994	0.994	0.994
0.075	-0.1	0.1	7.6	0	0.994	0.994	0.994	0.994
0.075	-0.2	-0.033333333	7.933333333	0	0.989	0.989	0.989	0.989
0.075	-0.3	-6	7.041666667	0	0.988	0.988	0.988	0.988
0.1	0.3	-0.3	3.9	0	0.991	0.991	0.991	0.991
0.1	0.2	-0.266666667	4.466666667	0	0.986	0.986	0.986	0.986
0.1	0.1	-3.633333333	4.133333333	0	0.994	0.994	0.994	0.994
0.1	0	-3.633333333	4.033333333	0	0.989	0.989	0.989	0.989
0.1	-0.1	-3.633333333	4.033333333	0	0.995	0.995	0.995	0.995
0.1	-0.2	-3.633333333	3.333333333	0	0.989	0.989	0.989	0.989
0.1	-0.3	-3.966666667	3.333333333	0	0.989	0.989	0.989	0.989

0.2	0.3	-1.466666667	0.766666667	0	0.991	0.991	0.99	0.99
0.2	0.2	-1.466666667	0.766666667	0	0.988	0.988	0.988	0.988
0.2	0.1	-1.633333333	0.766666667	0	0.993	0.993	0.993	0.993
0.2	0	-1.633333333	0.766666667	0	0.99	0.99	0.989	0.989
0.2	-0.1	-1.633333333	0.766666667	0	0.985	0.985	0.984	0.984
0.2	-0.2	-1.633333333	0.766666667	0	0.992	0.992	0.992	0.992
0.2	-0.3	-1.466666667	0.766666667	0	0.989	0.989	0.989	0.989
(0.3, 0.5, 0.3)								
0.025	0.3	-0.233333333	0.233333333	0	0.958	0.958	0.958	0.958
0.025	0.2	-0.1	0.433333333	0	0.955	0.955	0.955	0.955
0.025	0.1	0.033333333	0.733333333	0	0.971	0.971	0.971	0.971
0.025	0	0.166666667	1.333333333	0	0.963	0.963	0.963	0.963
0.025	-0.1	0.333333333	2.6	0	0.957	0.957	0.957	0.957
0.025	-0.2	0.533333333	6.633333333	0	0.966	0.966	0.966	0.966
0.025	-0.3	0.466666667	1878.833333	0	0.959	0.959	0.959	0.959
0.05	0.3	-0.166666667	6.666666667	0	0.969	0.969	0.969	0.969
0.05	0.2	0	6.966666667	0	0.969	0.969	0.969	0.969
0.05	0.1	0.166666667	7.466666667	0	0.966	0.966	0.966	0.966
0.05	0	0.4	8.333333333	0	0.959	0.959	0.959	0.959
0.05	-0.1	0.433333333	10.16666667	0	0.962	0.962	0.962	0.962
0.05	-0.2	1.033333333	17.7	0	0.97	0.97	0.97	0.97
0.05	-0.3	-6.966666667	24.46666667	0	0.958	0.958	0.958	0.958
0.075	0.3	0	4.9	0	0.974	0.974	0.974	0.974
0.075	0.2	0.4	19.6	0	0.97	0.97	0.97	0.97
0.075	0.1	-3.5	6	0	0.972	0.972	0.972	0.972
0.075	0	-3.5	6.066666667	0	0.96	0.96	0.96	0.96
0.075	-0.1	-3.5	6.166666667	0	0.967	0.967	0.967	0.967
0.075	-0.2	-3.5	6.5	0	0.969	0.969	0.969	0.969
0.075	-0.3	-5.566666667	3.166666667	0	0.964	0.964	0.964	0.964
0.1	0.3	-2.3	3.466666667	0	0.957	0.957	0.957	0.957
0.1	0.2	-2.133333333	3.566666667	0	0.946	0.946	0.946	0.946
0.1	0.1	-3.3	1.833333333	0	0.976	0.976	0.976	0.976
0.1	0	-2.466666667	1.833333333	0	0.957	0.957	0.957	0.957
0.1	-0.1	-3.3	1.833333333	0	0.961	0.961	0.961	0.961
0.1	-0.2	-3.633333333	2	0	0.972	0.972	0.972	0.972
0.1	-0.3	-3.3	1.833333333	0	0.962	0.962	0.962	0.962
0.2	0.3	-1.466666667	0.433333333	0	0.958	0.958	0.957	0.957
0.2	0.2	-1.466666667	0.433333333	0	0.973	0.973	0.973	0.973
0.2	0.1	-1.466666667	0.5	0	0.959	0.959	0.958	0.958
0.2	0	-1.466666667	0.5	0	0.954	0.954	0.954	0.954
0.2	-0.1	-1.466666667	0.5	0	0.962	0.962	0.962	0.962
0.2	-0.2	-1.3	0.5	0	0.966	0.966	0.966	0.966
0.2	-0.3	-1.466666667	0.433333333	0	0.966	0.966	0.966	0.966

(0.8, 0.5, 0.8)

0.025	0.3	-0.266666667	0.033333333	0	0.999	0.999	0.995	0.995
0.025	0.2	-0.166666667	0.066666667	0	0.998	0.998	0.998	0.998
0.025	0.1	-0.066666667	0.041666667	0	0.998	0.998	0.998	0.998
0.025	0	0.066666667	0.066666667	0	0.998	0.998	0.998	0.998
0.025	-0.1		0.2	0.1	0	0.998	0.998	0.998
0.025	-0.2		0.3	0.133333333	0	0.999	0.999	0.999
0.025	-0.3		0.4	0.166666667	0	1	1	1
0.05	0.3		-0.2	0.133333333	0	0.999	0.999	0.999
0.05	0.2	-0.066666667		0.2	0	1	1	1
0.05	0.1	0.066666667		0.275	0	0.999	0.999	0.999
0.05	0	0.266666667		0.4	0	0.999	0.999	0.999
0.05	-0.1	0.433333333		0.6	0	0.999	0.999	0.999
0.05	-0.2	0.633333333	0.933333333		0	0.998	0.998	0.998
0.05	-0.3	0.433333333	1.933333333		0	0.997	0.997	0.997
0.075	0.3	-0.066666667		0.4	0	0.998	0.998	0.998
0.075	0.2	0.166666667	0.733333333		0	0.999	0.999	0.999
0.075	0.1		0.1	0.933333333	0	0.999	0.999	0.999
0.075	0		0.2	2.125	0	0.999	0.999	0.999
0.075	-0.1	0.333333333		1.6	0	1	1	1
0.075	-0.2	0.566666667	22.94166667		0	1	1	1
0.075	-0.3	-0.033333333	8.166666667		0	1	1	1
0.1	0.3		-0.1	0.833333333	0	0.999	0.999	0.999
0.1	0.2	0.033333333	1.366666667		0	1	1	1
0.1	0.1	-0.166666667	4.633333333		0	1	1	1
0.1	0		-0.2	4.8	0	0.998	0.998	0.998
0.1	-0.1	-0.166666667	4.966666667		0	0.996	0.996	0.996
0.1	-0.2	-3.966666667		6.2	0	1	1	1
0.1	-0.3	-3.966666667	6.333333333		0	0.999	0.999	0.999
0.2	0.3	-1.633333333	1.866666667		0	0.998	0.998	0.995
0.2	0.2		-1.8	1.866666667	0	0.999	0.999	0.997
0.2	0.1		-1.7	1.8	0	0.998	0.998	0.996
0.2	0	-1.633333333	1.866666667		0	1	1	0.999
0.2	-0.1		-1.7	1.8	0	0.999	0.999	0.995
0.2	-0.2		-1.7	1.966666667	0	1	1	1
0.2	-0.3		-1.7	1.8	0	0.998	0.998	0.996

(0.5, 0.5, 0.5)

0.025	0.3	-0.266666667	0.033333333	0	0.991	0.991	0.991	0.991
0.025	0.2	-0.133333333	0.066666667	0	0.991	0.991	0.991	0.991
0.025	0.1	-0.033333333		0.1	0	0.99	0.99	0.99
0.025	0		0.1	0.133333333	0	0.993	0.993	0.993
0.025	-0.1	0.333333333		0.2	0	0.996	0.996	0.996
0.025	-0.2	0.366666667	0.266666667		0	0.992	0.992	0.992

0.025	-0.3	0.466666667	0.4	0	0.988	0.988	0.988	0.988
0.05	0.3	-0.2	0.3	0	0.989	0.989	0.989	0.989
0.05	0.2	0	0.5	0	0.992	0.992	0.992	0.992
0.05	0.1	0.166666667	0.9	0	0.992	0.992	0.992	0.992
0.05	0	0.4	1.666666667	0	0.989	0.989	0.989	0.989
0.05	-0.1	0.666666667	3.366666667	0	0.987	0.987	0.987	0.987
0.05	-0.2	1.033333333	10.8	0	0.994	0.994	0.994	0.994
0.05	-0.3	0.3	24.96666667	0	0.989	0.989	0.989	0.989
0.075	0.3	0.1	1.866666667	0	0.993	0.993	0.993	0.993
0.075	0.2	0.4	16.46666667	0	0.993	0.993	0.993	0.993
0.075	0.1	-0.15	6.5	0	0.993	0.993	0.993	0.993
0.075	0	-0.1	6.8	0	0.994	0.994	0.994	0.994
0.075	-0.1	-0.1	7.366666667	0	0.99	0.99	0.99	0.99
0.075	-0.2	-0.533333333	7.8	0	0.985	0.985	0.985	0.985
0.075	-0.3	-6	11.03333333	0	0.983	0.983	0.983	0.983
0.1	0.3	-0.466666667	3.9	0	0.989	0.989	0.989	0.989
0.1	0.2	-1	4.233333333	0	0.988	0.988	0.988	0.988
0.1	0.1	-3.3	4.033333333	0	0.993	0.993	0.993	0.993
0.1	0	-3.633333333	4.2	0	0.988	0.988	0.988	0.988
0.1	-0.1	-3.633333333	4	0	0.991	0.991	0.991	0.991
0.1	-0.2	-3.633333333	2.833333333	0	0.989	0.989	0.989	0.989
0.1	-0.3	-3.966666667	3.166666667	0	0.993	0.993	0.993	0.993
0.2	0.3	-1.466666667	0.766666667	0	0.995	0.995	0.995	0.995
0.2	0.2	-1.466666667	0.766666667	0	0.99	0.99	0.99	0.99
0.2	0.1	-1.633333333	0.766666667	0	0.992	0.992	0.992	0.992
0.2	0	-1.466666667	0.766666667	0	0.989	0.989	0.989	0.989
0.2	-0.1	-1.55	0.766666667	0	0.99	0.99	0.99	0.99
0.2	-0.2	-1.466666667	0.766666667	0	0.989	0.989	0.988	0.988
0.2	-0.3	-1.633333333	0.766666667	0	0.986	0.986	0.986	0.986

Table A3-4: 3 inspectors, 10 defects and 0.4 degree of difficulty.

3 ins/10 def/0.4 dif

(0.25,0.50,0.75)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.3	0	5	0.556	0.374	0.559	0.181
0.025	0.2	-0.2	0	1	0.807	0.641	0.74	0.382
0.025	0.1	-0.1	0	0	1	0.835	1	0.627
0.025	0	0	0	1	0.999	0.821	0.999	0.616
0.025	-0.1	0.1	0	0	0.893	0.746	0.8	0.453
0.025	-0.2	0.2	0	1	0.878	0.748	0.772	0.415
0.025	-0.3	0.3	0	1	0.856	0.713	0.701	0.361
0.05	0.3	-0.3	0	3	0.553	0.375	0.535	0.17

0.05	0.2	-0.2	0	0	0.81	0.635	0.791	0.415
0.05	0.1	-0.1	0	1	0.999	0.805	0.999	0.608
0.05	0	0	0.1	1	0.99	0.841	0.964	0.599
0.05	-0.1	0.1	0.1	0	0.868	0.693	0.817	0.459
0.05	-0.2	0.2	0.1	0	0.837	0.664	0.761	0.381
0.05	-0.3	0.3	0.1	0	0.836	0.672	0.679	0.306
0.075	0.3	-0.3	0.1	4	0.628	0.455	0.588	0.227
0.075	0.2	-0.2	0.1	3	0.867	0.716	0.827	0.457
0.075	0.1	-0.1	0.1	0	0.994	0.809	0.991	0.616
0.075	0	0.1	0.1	2	0.95	0.792	0.925	0.554
0.075	-0.1	0.2	0.2	0	0.875	0.727	0.792	0.445
0.075	-0.2	0.3	0.2	0	0.846	0.69	0.723	0.364
0.075	-0.3	0.4	0.2	1	0.829	0.659	0.654	0.272
0.1	0.3	-0.2	0.1	3	0.678	0.517	0.651	0.277
0.1	0.2	-0.1	0.1	4	0.923	0.786	0.876	0.554
0.1	0.1	0	0.2	0	0.969	0.81	0.962	0.593
0.1	0	0.1	0.2	2	0.906	0.74	0.86	0.48
0.1	-0.1	0.2	0.3	1	0.849	0.681	0.792	0.432
0.1	-0.2	0.3	0.3	2	0.853	0.705	0.711	0.337
0.1	-0.3	0.5	0.5	2	0.857	0.713	0.694	0.357
0.2	0.3	0	0.625	4	0.834	0.675	0.71	0.352
0.2	0.2	0	0.6	0	0.834	0.668	0.707	0.331
0.2	0.1	0.1	0.7	2	0.839	0.684	0.739	0.375
0.2	0	0.2	0.8	1	0.821	0.652	0.687	0.314
0.2	-0.1	0.3	1.1	2	0.826	0.66	0.682	0.317
0.2	-0.2	0.2	1.8	3	0.807	0.629	0.647	0.259
0.2	-0.3	0.3	2.05	1	0.813	0.64	0.638	0.252

(0.4,0.5,0.6)

0.025	0.3	-0.3	0	2	0.527	0.386	0.538	0.192
0.025	0.2	-0.2	0	3	0.791	0.639	0.767	0.409
0.025	0.1	-0.1	0	1	0.999	0.851	0.999	0.663
0.025	0	0	0	1	0.999	0.813	0.999	0.635
0.025	-0.1	0.1	0	0	0.904	0.764	0.829	0.518
0.025	-0.2	0.2	0	2	0.84	0.678	0.806	0.452
0.025	-0.3	0.3	0	0	0.831	0.662	0.684	0.317
0.05	0.3	-0.3	0	2	0.56	0.423	0.53	0.193
0.05	0.2	-0.2	0	0	0.818	0.649	0.773	0.41
0.05	0.1	-0.1	0.1	0	1	0.849	1	0.635
0.05	0	0	0.1	0	0.985	0.828	0.967	0.617
0.05	-0.1	0.1	0.1	2	0.891	0.741	0.81	0.472
0.05	-0.2	0.2	0.1	0	0.848	0.689	0.757	0.392
0.05	-0.3	0.4	0.1	2	0.834	0.668	0.713	0.374
0.075	0.3	-0.3	0.1	2	0.648	0.499	0.594	0.256

0.075	0.2	-0.2	0.1	3	0.909	0.734	0.859	0.512
0.075	0.1	0	0.1	2	0.991	0.826	0.984	0.631
0.075	0	0.1	0.1	0	0.94	0.793	0.904	0.54
0.075	-0.1	0.2	0.2	1	0.886	0.753	0.807	0.484
0.075	-0.2	0.3	0.3	3	0.834	0.667	0.725	0.367
0.075	-0.3	0.4	0.3	1	0.849	0.699	0.699	0.348
0.1	0.3	-0.2	0.1	1	0.722	0.557	0.705	0.334
0.1	0.2	-0.1	0.2	0	0.935	0.784	0.885	0.545
0.1	0.1	0	0.2	2	0.963	0.817	0.942	0.578
0.1	0	0.1	0.3	1	0.905	0.765	0.864	0.524
0.1	-0.1	0.2	0.3	1	0.859	0.704	0.785	0.432
0.1	-0.2	0.3	0.3	4	0.852	0.702	0.706	0.337
0.1	-0.3	0.5	0.6	0	0.844	0.687	0.656	0.282
0.2	0.3	0	0.7	3	0.793	0.612	0.715	0.341
0.2	0.2	0	0.6	1	0.835	0.666	0.672	0.304
0.2	0.1	0.1	0.9	1	0.852	0.696	0.754	0.428
0.2	0	0.2	0.9	2	0.837	0.694	0.688	0.338
0.2	-0.1	0.3	1.2	0	0.846	0.706	0.681	0.345
0.2	-0.2	0.2	2.4	3	0.835	0.704	0.656	0.314
0.2	-0.3	0.2	2.5	1	0.807	0.64	0.649	0.294

(0.3,0.5,0.3)

0.025	0.3	-0.3	0	9	0.729	0.682	0.581	0.452
0.025	0.2	-0.2	0	9	0.904	0.866	0.805	0.68
0.025	0.1	-0.1	0	6	0.994	0.953	0.994	0.855
0.025	0	0	0	12	0.988	0.945	0.988	0.866
0.025	-0.1	0.1	0	11	0.952	0.906	0.92	0.805
0.025	-0.2	0.2	0	5	0.955	0.913	0.915	0.793
0.025	-0.3	0.3	0	13	0.949	0.911	0.855	0.716
0.05	0.3	-0.3	0	9	0.693	0.658	0.561	0.427
0.05	0.2	-0.2	0.1	7	0.924	0.884	0.826	0.707
0.05	0.1	-0.1	0.1	9	0.991	0.949	0.991	0.858
0.05	0	0.1	0.1	13	0.98	0.938	0.961	0.825
0.05	-0.1	0.2	0.1	10	0.958	0.914	0.903	0.772
0.05	-0.2	0.3	0.2	10	0.951	0.912	0.879	0.742
0.05	-0.3	0.4	0.2	14	0.938	0.89	0.857	0.719
0.075	0.3	-0.2	0.1	7	0.798	0.75	0.645	0.501
0.075	0.2	-0.1	0.1	12	0.939	0.896	0.901	0.746
0.075	0.1	0	0.2	5	0.989	0.952	0.985	0.855
0.075	0	0.1	0.3	10	0.972	0.933	0.937	0.804
0.075	-0.1	0.2	0.4	10	0.946	0.9	0.895	0.756
0.075	-0.2	0.4	0.4	4	0.95	0.904	0.898	0.781
0.075	-0.3	0.4	0.5	12	0.955	0.922	0.868	0.741
0.1	0.3	-0.2	0.2	9	0.841	0.799	0.761	0.608

	0.1	0.2	-0.1	0.3	6	0.957	0.913	0.947	0.803
	0.1	0.1	0	0.3	11	0.972	0.922	0.959	0.819
	0.1	0	0.1	0.4	8	0.957	0.912	0.919	0.783
	0.1	-0.1	0.3	0.6	4	0.956	0.915	0.89	0.758
	0.1	-0.2	0.4	0.9	4	0.951	0.906	0.871	0.73
	0.1	-0.3	0.5	1.3	9	0.946	0.901	0.856	0.716
	0.2	0.3	0	2.9	8	0.917	0.871	0.809	0.671
	0.2	0.2	-0.2	8	4	0.911	0.877	0.81	0.682
	0.2	0.1	-0.1	3.1	4	0.9	0.856	0.824	0.688
	0.2	0	0	2.5	14	0.836	0.798	0.746	0.609
	0.2	-0.1	0.1	2.3	11	0.823	0.78	0.734	0.604
	0.2	-0.2	-1	2.6	7	0.825	0.776	0.733	0.592
	0.2	-0.3	-1	2.6	7	0.834	0.783	0.742	0.598
(0.8,0.5,0.8)									
	0.025	0.3	-0.3	0	2	0.567	0.099	0.747	0.029
	0.025	0.2	-0.2	0	0	0.755	0.307	0.819	0.126
	0.025	0.1	-0.1	0	0	1	0.555	1	0.318
	0.025	0	0	0	0	1	0.545	1	0.303
	0.025	-0.1	0.1	0	0	0.793	0.354	0.735	0.031
	0.025	-0.2	0.2	0	0	0.584	0.111	0.771	0.069
	0.025	-0.3	0.3	0	0	0.537	0.069	0.516	-0.185
	0.05	0.3	-0.3	0	6	0.562	0.106	0.746	0.028
	0.05	0.2	-0.2	0	1	0.754	0.293	0.856	0.139
	0.05	0.1	-0.1	0	0	1	0.575	1	0.339
	0.05	0	0	0	0	0.984	0.534	0.975	0.261
	0.05	-0.1	0.1	0	0	0.737	0.258	0.772	0.065
	0.05	-0.2	0.2	0	0	0.569	0.083	0.704	-0.022
	0.05	-0.3	0.3	0.1	0	0.542	0.073	0.523	-0.179
	0.075	0.3	-0.3	0.1	5	0.615	0.156	0.746	0.053
	0.075	0.2	-0.2	0.1	0	0.838	0.39	0.863	0.172
	0.075	0.1	-0.1	0.1	0	0.983	0.514	0.991	0.291
	0.075	0	0	0.1	0	0.916	0.454	0.911	0.206
	0.075	-0.1	0.1	0.1	0	0.686	0.233	0.753	0.058
	0.075	-0.2	0.2	0.1	0	0.564	0.097	0.661	-0.037
	0.075	-0.3	0.3	0.1	0	0.549	0.087	0.514	-0.195
	0.1	0.3	-0.2	0.1	5	0.651	0.198	0.777	0.071
	0.1	0.2	-0.1	0.1	0	0.862	0.391	0.912	0.2
	0.1	0.1	0	0.1	1	0.935	0.48	0.948	0.232
	0.1	0	0.1	0.1	0	0.833	0.382	0.853	0.15
	0.1	-0.1	0.2	0.2	0	0.695	0.24	0.761	0.073
	0.1	-0.2	0.3	0.2	0	0.606	0.166	0.651	-0.023
	0.1	-0.3	0.4	0.3	0	0.556	0.098	0.53	-0.173
	0.2	0.3	0	0.4	5	0.646	0.204	0.724	0.029

	0.2	0.2	0	0.5	0	0.676	0.201	0.663	-0.056
	0.2	0.1	0.1	0.5	0	0.645	0.166	0.68	-0.041
	0.2	0	0.2	0.6	0	0.657	0.176	0.597	-0.155
	0.2	-0.1	0.3	0.8	0	0.611	0.138	0.54	-0.16
	0.2	-0.2	0.3	0.7	0	0.602	0.147	0.501	-0.189
	0.2	-0.3	0.3	0.9	0	0.6	0.142	0.523	-0.183
(0.5,0.5,0.5)									
	0.025	0.3	-0.3	0	2	0.555	0.391	0.533	0.175
	0.025	0.2	-0.2	0	1	0.807	0.638	0.761	0.4
	0.025	0.1	-0.1	0	1	0.999	0.842	0.999	0.656
	0.025	0	0	0	1	0.999	0.836	0.999	0.646
	0.025	-0.1	0.1	0	2	0.901	0.764	0.802	0.469
	0.025	-0.2	0.2	0	0	0.864	0.725	0.796	0.453
	0.025	-0.3	0.3	0	0	0.841	0.682	0.704	0.362
	0.05	0.3	-0.3	0	1	0.544	0.396	0.522	0.176
	0.05	0.2	-0.2	0	3	0.827	0.656	0.775	0.416
	0.05	0.1	-0.1	0.1	1	0.999	0.85	0.999	0.641
	0.05	0	0	0.1	0	0.979	0.812	0.959	0.589
	0.05	-0.1	0.1	0.1	2	0.879	0.732	0.818	0.49
	0.05	-0.2	0.2	0.1	0	0.852	0.697	0.762	0.407
	0.05	-0.3	0.3	0.1	1	0.861	0.722	0.706	0.366
	0.075	0.3	-0.3	0.1	2	0.665	0.505	0.605	0.253
	0.075	0.2	-0.1	0.1	1	0.925	0.765	0.846	0.501
	0.075	0.1	0	0.1	2	0.983	0.821	0.986	0.654
	0.075	0	0.1	0.2	3	0.923	0.76	0.915	0.563
	0.075	-0.1	0.2	0.2	0	0.875	0.738	0.776	0.424
	0.075	-0.2	0.3	0.3	2	0.86	0.719	0.731	0.384
	0.075	-0.3	0.4	0.3	0	0.844	0.688	0.69	0.333
	0.1	0.3	-0.2	0.1	6	0.739	0.573	0.697	0.334
	0.1	0.2	-0.1	0.2	1	0.932	0.779	0.898	0.559
	0.1	0.1	0	0.2	1	0.967	0.824	0.938	0.596
	0.1	0	0.1	0.3	2	0.893	0.719	0.855	0.483
	0.1	-0.1	0.2	0.3	0	0.862	0.709	0.757	0.389
	0.1	-0.2	0.3	0.4	0	0.849	0.695	0.748	0.406
	0.1	-0.3	0.5	0.6	2	0.841	0.684	0.684	0.328
	0.2	0.3	0	0.7	1	0.817	0.656	0.712	0.352
	0.2	0.2	0	0.6	1	0.841	0.675	0.681	0.306
	0.2	0.1	0.1	0.8	2	0.849	0.702	0.717	0.371
	0.2	0	0.2	0.9	1	0.814	0.644	0.699	0.366
	0.2	-0.1	0.4	1	0	0.832	0.677	0.633	0.254
	0.2	-0.2	0.1	2.8	1	0.805	0.642	0.64	0.27
	0.2	-0.3	0.3	2.7	2	0.791	0.624	0.621	0.248

Table A3-5: 3 inspectors, 20 defects and 0.4 degree of difficulty.

3 ins/20 def/0.4 dif

(0.25,0.50,0.75)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.3	0	0	0.484	0.422	0.395	0.144
0.025	0.2	-0.2	0	0	0.799	0.744	0.683	0.427
0.025	0.1	-0.1	0	0	0.923	0.867	0.854	0.592
0.025	0	0	0	0	1	0.951	1	0.76
0.025	-0.1	0.1	0	0	0.954	0.901	0.896	0.674
0.025	-0.2	0.2	0	0	0.939	0.878	0.829	0.599
0.025	-0.3	0.3	0	0	0.955	0.91	0.773	0.533
0.05	0.3	-0.3	0.05	0	0.545	0.502	0.42	0.189
0.05	0.2	-0.2	0.05	0	0.837	0.793	0.664	0.453
0.05	0.1	-0.1	0.05	0	0.971	0.921	0.845	0.615
0.05	0	0.05	0.05	0	0.978	0.926	0.973	0.731
0.05	-0.1	0.15	0.1	0	0.943	0.882	0.853	0.62
0.05	-0.2	0.25	0.1	0	0.944	0.888	0.803	0.569
0.05	-0.3	0.35	0.1	0	0.943	0.886	0.774	0.529
0.075	0.3	-0.25	0.1	0	0.625	0.577	0.469	0.238
0.075	0.2	-0.15	0.1	0	0.856	0.807	0.702	0.46
0.075	0.1	-0.05	0.1	0	0.983	0.937	0.862	0.637
0.075	0	0.05	0.15	0	0.965	0.911	0.934	0.709
0.075	-0.1	0.15	0.15	0	0.948	0.894	0.826	0.574
0.075	-0.2	0.25	0.25	0	0.954	0.908	0.776	0.534
0.075	-0.3	0.35	0.25	0	0.935	0.87	0.745	0.475
0.1	0.3	-0.2	0.1	0	0.768	0.697	0.587	0.339
0.1	0.2	-0.1	0.15	0	0.918	0.862	0.74	0.528
0.1	0.1	0	0.15	0	0.951	0.896	0.888	0.656
0.1	0	0.1	0.25	0	0.954	0.896	0.858	0.611
0.1	-0.1	0.2	0.25	0	0.955	0.908	0.817	0.582
0.1	-0.2	0.3	0.35	0	0.952	0.903	0.801	0.572
0.1	-0.3	0.4	0.45	0	0.941	0.882	0.751	0.485
0.2	0.3	0	0.6	0	0.854	0.799	0.682	0.43
0.2	0.2	0.1	0.7	0	0.911	0.863	0.711	0.476
0.2	0.1	0.2	0.8	0	0.914	0.855	0.738	0.477
0.2	0	0.2	0.95	0	0.938	0.895	0.738	0.513
0.2	-0.1	0.3	1.15	0	0.929	0.871	0.733	0.48
0.2	-0.2	0.3	1.3	0	0.946	0.895	0.719	0.49
0.2	-0.3	0.35	1.55	0	0.946	0.895	0.745	0.502

(0.4,0.5,0.6)

0.025	0.3	-0.3	0	0	0.479	0.431	0.388	0.145
0.025	0.2	-0.2	0	0	0.811	0.763	0.693	0.456

0.025	0.1	-0.1	0	0	0.937	0.879	0.836	0.613
0.025	0	0	0	0	0.999	0.961	1	0.793
0.025	-0.1	0.1	0	0	0.959	0.913	0.875	0.66
0.025	-0.2	0.2	0	0	0.953	0.904	0.824	0.607
0.025	-0.3	0.3	0.05	0	0.943	0.886	0.777	0.539
0.05	0.3	-0.25	0.05	0	0.595	0.55	0.437	0.221
0.05	0.2	-0.15	0.05	0	0.852	0.804	0.661	0.458
0.05	0.1	-0.05	0.05	0	0.981	0.93	0.855	0.626
0.05	0	0.05	0.05	0	0.982	0.944	0.972	0.729
0.05	-0.1	0.15	0.1	0	0.953	0.906	0.844	0.605
0.05	-0.2	0.25	0.1	0	0.951	0.902	0.798	0.572
0.05	-0.3	0.35	0.15	0	0.957	0.914	0.801	0.598
0.075	0.3	-0.25	0.05	0	0.679	0.615	0.542	0.297
0.075	0.2	-0.15	0.1	0	0.868	0.815	0.792	0.546
0.075	0.1	-0.05	0.15	0	0.977	0.938	0.881	0.652
0.075	0	0.1	0.2	0	0.967	0.922	0.887	0.663
0.075	-0.1	0.15	0.2	0	0.948	0.895	0.847	0.637
0.075	-0.2	0.3	0.3	0	0.957	0.914	0.822	0.622
0.075	-0.3	0.4	0.35	0	0.947	0.894	0.773	0.54
0.1	0.3	-0.2	0.15	0	0.811	0.761	0.613	0.406
0.1	0.2	-0.1	0.15	0	0.913	0.866	0.782	0.523
0.1	0.1	0.05	0.2	0	0.961	0.918	0.84	0.598
0.1	0	0.15	0.3	0	0.957	0.908	0.847	0.625
0.1	-0.1	0.25	0.4	0	0.971	0.942	0.854	0.674
0.1	-0.2	0.35	0.45	0	0.951	0.902	0.78	0.546
0.1	-0.3	0.45	0.65	0	0.952	0.903	0.779	0.542
0.2	0.3	0.1	0.65	0	0.883	0.829	0.653	0.416
0.2	0.2	0.1	0.85	0	0.92	0.884	0.695	0.466
0.2	0.1	0.15	0.85	0	0.934	0.889	0.766	0.533
0.2	0	0.2	1.05	0	0.941	0.895	0.739	0.514
0.2	-0.1	0.25	1.45	0	0.938	0.891	0.733	0.497
0.2	-0.2	0.3	1.55	0	0.94	0.891	0.741	0.522
0.2	-0.3	0.35	1.7625	0	0.938	0.884	0.734	0.499

(0.3,0.5,0.3)

0.025	0.3	-0.3	0	0	0.828	0.825	0.544	0.512
0.025	0.2	-0.2	0	0	0.968	0.961	0.841	0.802
0.025	0.1	-0.1	0	0	0.994	0.993	0.942	0.908
0.025	0	0	0.05	0	1	1	1	0.963
0.025	-0.1	0.1	0.05	0	0.998	0.996	0.977	0.948
0.025	-0.2	0.2	0.05	0	0.999	0.998	0.978	0.956
0.025	-0.3	0.3	0.05	0	1	1	0.973	0.946
0.05	0.3	-0.25	0.05	0	0.875	0.874	0.621	0.591
0.05	0.2	-0.15	0.1	0	0.965	0.964	0.863	0.823

	0.05	0.1	-0.05	0.1	0	1	0.996	0.962	0.925
	0.05	0	0.05	0.15	0	0.995	0.99	0.993	0.959
	0.05	-0.1	0.15	0.15	0	0.994	0.988	0.958	0.908
	0.05	-0.2	0.25	0.2	0	0.998	0.996	0.959	0.918
	0.05	-0.3	0.4	0.2	0	0.995	0.99	0.958	0.915
	0.075	0.3	-0.25	0.05	1	0.924	0.92	0.727	0.689
	0.075	0.2	-0.1	0.1	0	0.985	0.98	0.914	0.878
	0.075	0.1	0	0.15	0	0.997	0.995	0.968	0.925
	0.075	0	0.1	0.25	0	0.997	0.994	0.978	0.939
	0.075	-0.1	0.25	0.25	0	0.996	0.992	0.96	0.916
	0.075	-0.2	0.4	0.55	0	0.997	0.994	0.97	0.938
	0.075	-0.3	0.45	0.475	1	0.995	0.991	0.956	0.913
	0.1	0.3	-0.2	0.15	0	0.958	0.956	0.788	0.748
	0.1	0.2	-0.05	0.3	0	0.992	0.986	0.933	0.898
	0.1	0.1	0.05	0.4	0	0.996	0.993	0.975	0.939
	0.1	0	0.2	0.4	0	1	0.999	0.966	0.93
	0.1	-0.1	0.35	0.65	0	0.997	0.994	0.957	0.912
	0.1	-0.2	0.5	0.7625	0	0.999	0.998	0.967	0.934
	0.1	-0.3	0.6	0.9	0	0.996	0.992	0.966	0.931
	0.2	0.3	0	0.85	1	0.981	0.979	0.887	0.858
	0.2	0.2	0	1.7	0	0.984	0.981	0.89	0.852
	0.2	0.1	0.05	2.15	0	0.979	0.969	0.928	0.883
	0.2	0	0	2.65	0	0.979	0.971	0.933	0.896
	0.2	-0.1	0	2.8625	0	0.987	0.982	0.936	0.892
	0.2	-0.2	0.05	3.15	0	0.988	0.983	0.933	0.891
	0.2	-0.3	-0.05	3.4875	0	0.988	0.984	0.94	0.908
(0.8,0.5,0.8)									
	0.025	0.3	-0.3	0	0	0.428	0.085	0.702	0.007
	0.025	0.2	-0.2	0	0	0.668	0.295	0.776	0.071
	0.025	0.1	-0.1	0	0	0.832	0.477	0.876	0.164
	0.025	0	0	0	0	0.998	0.669	1	0.296
	0.025	-0.1	0.1	0	0	0.747	0.417	0.815	0.097
	0.025	-0.2	0.2	0	0	0.659	0.287	0.631	-0.102
	0.025	-0.3	0.3	0	0	0.632	0.261	0.496	-0.216
	0.05	0.3	-0.25	0.05	0	0.436	0.103	0.72	0.019
	0.05	0.2	-0.2	0.05	0	0.665	0.337	0.757	0.09
	0.05	0.1	-0.1	0.05	0	0.902	0.591	0.845	0.181
	0.05	0	0	0.05	0	0.931	0.576	0.952	0.262
	0.05	-0.1	0.1	0.05	0	0.715	0.355	0.801	0.091
	0.05	-0.2	0.2	0.1	0	0.688	0.351	0.589	-0.111
	0.05	-0.3	0.3	0.1	0	0.668	0.334	0.486	-0.194
	0.075	0.3	-0.25	0.05	0	0.483	0.166	0.698	0.033
	0.075	0.2	-0.15	0.1	0	0.697	0.337	0.799	0.082

0.075	0.1	-0.05	0.1	0	0.868	0.5	0.886	0.162
0.075	0	0.05	0.1	0	0.848	0.497	0.878	0.179
0.075	-0.1	0.1	0.15	0	0.719	0.381	0.752	0.049
0.075	-0.2	0.2	0.15	0	0.657	0.304	0.594	-0.113
0.075	-0.3	0.3	0.2	0	0.661	0.322	0.458	-0.247
0.1	0.3	-0.2	0.1	0	0.574	0.233	0.732	0.045
0.1	0.2	-0.1	0.1	0	0.742	0.383	0.816	0.092
0.1	0.1	-0.025	0.15	0	0.796	0.454	0.838	0.138
0.1	0	0.05	0.15	0	0.777	0.405	0.808	0.103
0.1	-0.1	0.15	0.2	0	0.716	0.386	0.681	-0.003
0.1	-0.2	0.2	0.25	0	0.673	0.324	0.581	-0.123
0.1	-0.3	0.3	0.35	0	0.68	0.357	0.521	-0.157
0.2	0.3	0	0.35	0	0.646	0.257	0.658	-0.065
0.2	0.2	0	0.35	0	0.644	0.301	0.643	-0.058
0.2	0.1	0.1	0.5	0	0.657	0.307	0.602	-0.077
0.2	0	0.15	0.55	0	0.667	0.317	0.565	-0.145
0.2	-0.1	0.15	0.65	0	0.66	0.315	0.538	-0.134
0.2	-0.2	0.2	0.55	0	0.661	0.333	0.547	-0.144
0.2	-0.3	0.25	0.7	0	0.641	0.275	0.509	-0.177

(0.5,0.5,0.5)

0.025	0.3	-0.3	0	0	0.532	0.485	0.398	0.161
0.025	0.2	-0.2	0	0	0.829	0.78	0.652	0.432
0.025	0.1	-0.1	0	0	0.95	0.908	0.84	0.639
0.025	0	0	0	0	0.998	0.956	1	0.797
0.025	-0.1	0.1	0	0	0.95	0.899	0.873	0.646
0.025	-0.2	0.2	0.05	0	0.949	0.898	0.847	0.651
0.025	-0.3	0.3	0.05	0	0.954	0.908	0.796	0.577
0.05	0.3	-0.25	0.05	0	0.604	0.547	0.418	0.196
0.05	0.2	-0.15	0.05	0	0.842	0.797	0.715	0.503
0.05	0.1	-0.05	0.05	0	0.98	0.93	0.85	0.625
0.05	0	0.05	0.0625	0	0.983	0.942	0.973	0.77
0.05	-0.1	0.15	0.1	0	0.961	0.922	0.869	0.672
0.05	-0.2	0.25	0.1	0	0.974	0.948	0.808	0.602
0.05	-0.3	0.35	0.1	0	0.952	0.904	0.759	0.513
0.075	0.3	-0.25	0.05	0	0.7	0.648	0.509	0.298
0.075	0.2	-0.15	0.1	0	0.892	0.849	0.749	0.532
0.075	0.1	-0.05	0.15	0	0.98	0.936	0.878	0.652
0.075	0	0.1	0.15	0	0.967	0.922	0.889	0.664
0.075	-0.1	0.2	0.2	0	0.961	0.921	0.843	0.624
0.075	-0.2	0.3	0.25	0	0.956	0.912	0.796	0.574
0.075	-0.3	0.4	0.35	0	0.957	0.914	0.775	0.543
0.1	0.3	-0.2	0.15	0	0.783	0.742	0.644	0.413
0.1	0.2	-0.1	0.2	0	0.918	0.875	0.788	0.559

0.1	0.1	0.05	0.3	0	0.96	0.923	0.848	0.654
0.1	0	0.15	0.35	0	0.952	0.896	0.86	0.636
0.1	-0.1	0.25	0.45	0	0.958	0.915	0.829	0.62
0.1	-0.2	0.35	0.45	0	0.966	0.93	0.817	0.612
0.1	-0.3	0.45	0.65	0	0.961	0.922	0.792	0.574
0.2	0.3	0.1	0.65	0	0.884	0.837	0.676	0.439
0.2	0.2	0.05	0.8	0	0.927	0.886	0.698	0.473
0.2	0.1	0.15	0.95	0	0.919	0.872	0.748	0.544
0.2	0	0.15	1.2	0	0.932	0.887	0.748	0.523
0.2	-0.1	0.3	1.35	0	0.948	0.905	0.737	0.501
0.2	-0.2	0.25	1.4	0	0.937	0.891	0.758	0.542
0.2	-0.3	0.25	1.95	0	0.95	0.911	0.728	0.495

Table A4-1: 4 inspectors, 10 defects and 0.1 degree of difficulty.

4 ins/10 def/0.1 dif

(0.1,0.4,0.6,0.9)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.3	0	111	0.868	0.868	0.797	0.794
0.025	0.2	-0.2	0	107	0.89	0.889	0.87	0.866
0.025	0.1	-0.1	0.1	133	0.867	0.867	0.867	0.863
0.025	0	0.1	0.1	128	0.872	0.871	0.872	0.868
0.025	-0.1	0.2	0.1	142	0.857	0.856	0.854	0.849
0.025	-0.2	0.3	0.1	135	0.864	0.863	0.862	0.858
0.025	-0.3	0.5	0.2	139	0.859	0.857	0.858	0.855
0.05	0.3	-0.2	0.1	118	0.853	0.852	0.794	0.791
0.05	0.2	0	0.2	118	0.881	0.881	0.869	0.867
0.05	0.1	0.1	0.2	142	0.858	0.857	0.858	0.856
0.05	0	0.4	0.3	142	0.858	0.856	0.855	0.848
0.05	-0.1	0.6	0.5	129	0.87	0.869	0.868	0.864
0.05	-0.2	1	0.7	126	0.874	0.874	0.871	0.868
0.05	-0.3	1.4	0.9	129	0.871	0.871	0.868	0.865
0.075	0.3	0	0.2	120	0.861	0.861	0.816	0.811
0.075	0.2	0.3	0.4	115	0.885	0.884	0.882	0.879
0.075	0.1	0.9	0.9	118	0.881	0.88	0.881	0.872
0.075	0	1.8	1.6	126	0.872	0.87	0.87	0.864
0.075	-0.1	4.2	4.3	108	0.892	0.892	0.886	0.88
0.075	-0.2	22.9	24.5	120	0.879	0.878	0.874	0.868
0.075	-0.3	-10.9	12.5	130	0.87	0.87	0.865	0.86
0.1	0.3	0.7	1.1	127	0.859	0.859	0.839	0.83
0.1	0.2	2.7	2.7	115	0.885	0.885	0.882	0.877
0.1	0.1	-58.3	58.5	119	0.881	0.881	0.879	0.874
0.1	0	-4.4	5.3	135	0.864	0.863	0.862	0.858
0.1	-0.1	-2.7	3.4	114	0.885	0.884	0.881	0.875

0.1	-0.2	-2.2	3.3	115	0.884	0.883	0.877	0.868
0.1	-0.3	-1.9	3.575	126	0.874	0.874	0.872	0.87
0.2	0.3	-1.1	3.7	128	0.869	0.868	0.858	0.852
0.2	0.2	-1	6.8	130	0.606	0.605	0.598	0.591
0.2	0.1	-1.1	1.7	110	0.617	0.617	0.612	0.607
0.2	0	-1	0.9	139	0.425	0.425	0.423	0.422
0.2	-0.1	-1	0.6	136	0.439	0.439	0.436	0.433
0.2	-0.2	-1	0.4	117	0.417	0.417	0.416	0.415
0.2	-0.3	-1	0.3	134	0.447	0.447	0.445	0.443
(0.1,0.1,0.9,0.9)								
0.025	0.3	-0.3	0	119	0.853	0.852	0.784	0.778
0.025	0.2	-0.2	0	131	0.865	0.864	0.848	0.843
0.025	0.1	-0.1	0	114	0.886	0.886	0.886	0.877
0.025	0	0	0.1	128	0.872	0.871	0.872	0.866
0.025	-0.1	0.2	0.1	126	0.874	0.874	0.861	0.848
0.025	-0.2	0.3	0.1	129	0.871	0.871	0.862	0.853
0.025	-0.3	0.5	0.2	109	0.891	0.891	0.885	0.879
0.05	0.3	-0.2	0.1	126	0.846	0.843	0.776	0.767
0.05	0.2	0	0.2	121	0.874	0.873	0.865	0.859
0.05	0.1	0.1	0.2	125	0.875	0.875	0.875	0.874
0.05	0	0.4	0.3	127	0.873	0.873	0.872	0.867
0.05	-0.1	0.6	0.4	118	0.881	0.88	0.88	0.877
0.05	-0.2	1	0.7	116	0.882	0.88	0.876	0.868
0.05	-0.3	1.4	0.9	115	0.885	0.885	0.883	0.881
0.075	0.3	0	0.2	129	0.858	0.858	0.802	0.798
0.075	0.2	0.3	0.4	140	0.859	0.859	0.846	0.841
0.075	0.1	0.9	0.9	125	0.875	0.875	0.875	0.869
0.075	0	1.8	1.6	115	0.884	0.883	0.881	0.874
0.075	-0.1	0.5	3.9	109	0.89	0.889	0.888	0.884
0.075	-0.2	22.9	22.4	133	0.866	0.865	0.863	0.859
0.075	-0.3	-10.9	11.7	124	0.875	0.874	0.869	0.862
0.1	0.3	-0.1	0.9	115	0.88	0.88	0.852	0.851
0.1	0.2	2.7	2.7	102	0.898	0.898	0.896	0.894
0.1	0.1	-58.3	58.5	128	0.872	0.872	0.871	0.867
0.1	0	-4.4	4.8	122	0.878	0.877	0.873	0.867
0.1	-0.1	0.1	3.4	142	0.858	0.858	0.854	0.85
0.1	-0.2	-2.2	3.3	119	0.881	0.881	0.877	0.873
0.1	-0.3	0.3	3.5	120	0.879	0.878	0.873	0.866
0.2	0.3	-1.1	3.7	129	0.87	0.87	0.862	0.859
0.2	0.2	-1	6.8	116	0.599	0.599	0.591	0.586
0.2	0.1	-1.1	1.7	137	0.611	0.611	0.607	0.604
0.2	0	-1	0.9	122	0.435	0.435	0.434	0.433
0.2	-0.1	-1	0.6	115	0.438	0.436	0.434	0.428

	0.2	-0.2	-1	0.4	120	0.447	0.447	0.438	0.429
	0.2	-0.3	-1	0.3	122	0.435	0.435	0.427	0.419
(0.5,0.5,0.9,0.9)									
	0.025	0.3	-0.3	0	51	0.886	0.882	0.745	0.727
	0.025	0.2	-0.2	0	57	0.922	0.919	0.893	0.869
	0.025	0.1	-0.1	0	57	0.943	0.938	0.943	0.922
	0.025	0	0	0.1	53	0.947	0.941	0.947	0.921
	0.025	-0.1	0.1	0.1	57	0.939	0.933	0.923	0.897
	0.025	-0.2	0.2	0.1	44	0.953	0.95	0.945	0.931
	0.025	-0.3	0.3	0.2	57	0.939	0.935	0.923	0.903
	0.05	0.3	-0.3	0.1	60	0.854	0.851	0.733	0.712
	0.05	0.2	-0.1	0.2	56	0.935	0.932	0.902	0.886
	0.05	0.1	0	0.3	57	0.943	0.938	0.943	0.922
	0.05	0	0.1	0.4	46	0.951	0.945	0.949	0.93
	0.05	-0.1	0.2	0.4	51	0.946	0.943	0.929	0.906
	0.05	-0.2	0.4	0.7	62	0.935	0.932	0.918	0.898
	0.05	-0.3	0.5	1	59	0.939	0.937	0.914	0.887
	0.075	0.3	-0.2	0.3	62	0.897	0.894	0.818	0.794
	0.075	0.2	-0.1	0.5	61	0.935	0.933	0.923	0.905
	0.075	0.1	0.1	1	49	0.95	0.947	0.947	0.932
	0.075	0	0.3	1.9	56	0.943	0.939	0.933	0.913
	0.075	-0.1	0.5	4.3	42	0.953	0.948	0.942	0.923
	0.075	-0.2	0.7	24.7	48	0.948	0.944	0.935	0.917
	0.075	-0.3	0.3	12.7	39	0.958	0.955	0.938	0.915
	0.1	0.3	-0.1	1.1	53	0.93	0.925	0.872	0.853
	0.1	0.2	0.1	3.2	55	0.944	0.939	0.933	0.917
	0.1	0.1	-0.1	65.8	60	0.939	0.938	0.934	0.918
	0.1	0	0	4.8	56	0.936	0.928	0.931	0.909
	0.1	-0.1	0.1	3.7	55	0.943	0.941	0.916	0.886
	0.1	-0.2	0.2	3.5	62	0.933	0.928	0.922	0.904
	0.1	-0.3	0.3	3.5	59	0.936	0.931	0.919	0.897
	0.2	0.3	-0.3	3.8	62	0.934	0.931	0.905	0.888
	0.2	0.2	-1.1	7.6	54	0.778	0.775	0.751	0.727
	0.2	0.1	-1.1	2.6	50	0.791	0.789	0.765	0.743
	0.2	0	-1	1.9	42	0.611	0.61	0.591	0.567
	0.2	-0.1	-1	1.7	49	0.623	0.62	0.602	0.579
	0.2	-0.2	-1	0.7	53	0.596	0.594	0.577	0.554
	0.2	-0.3	-1	0.6	55	0.614	0.608	0.593	0.566
(0.9,0.9,0.9,0.9)									
	0.025	0.3	-0.3	0	18	0.797	0.785	0.63	0.572
	0.025	0.2	-0.2	0	25	0.931	0.918	0.853	0.796
	0.025	0.1	-0.1	0	24	0.976	0.967	0.976	0.912
	0.025	0	0	0.1	18	0.982	0.97	0.982	0.925

0.025	-0.1	0.1	0.1	21	0.965	0.947	0.938	0.879
0.025	-0.2	0.2	0.1	24	0.97	0.964	0.933	0.884
0.025	-0.3	0.3	0.2	19	0.966	0.951	0.937	0.89
0.05	0.3	-0.3	0.1	21	0.825	0.815	0.656	0.604
0.05	0.2	-0.2	0.2	19	0.938	0.924	0.906	0.834
0.05	0.1	0	0.2	29	0.971	0.961	0.971	0.91
0.05	0	0.1	0.4	24	0.97	0.955	0.954	0.899
0.05	-0.1	0.2	0.5	14	0.971	0.955	0.937	0.874
0.05	-0.2	0.3	0.8	32	0.955	0.942	0.905	0.835
0.05	-0.3	0.5	1	26	0.961	0.948	0.926	0.876
0.075	0.3	-0.2	0.3	17	0.906	0.895	0.784	0.733
0.075	0.2	-0.1	0.5	27	0.957	0.935	0.924	0.852
0.075	0.1	0.1	0.9	10	0.983	0.964	0.974	0.905
0.075	0	0.2	1.7	27	0.965	0.954	0.947	0.906
0.075	-0.1	0.4	4	24	0.967	0.958	0.929	0.877
0.075	-0.2	0.6	22.6	20	0.96	0.94	0.913	0.841
0.075	-0.3	0.4	11.7	25	0.952	0.929	0.91	0.844
0.1	0.3	-0.1	0.9	24	0.911	0.901	0.864	0.803
0.1	0.2	0	2.8	21	0.966	0.953	0.949	0.888
0.1	0.1	0	58.5	33	0.96	0.948	0.945	0.89
0.1	0	0.1	4.9	25	0.959	0.939	0.94	0.881
0.1	-0.1	0.2	3.4	21	0.958	0.937	0.915	0.841
0.1	-0.2	0.3	3.4	17	0.966	0.949	0.916	0.847
0.1	-0.3	0.5	3.7	25	0.955	0.935	0.911	0.846
0.2	0.3	0	3.7	28	0.947	0.936	0.89	0.834
0.2	0.2	-1	9.675	18	0.867	0.854	0.794	0.732
0.2	0.1	-1.1	2.9	21	0.875	0.862	0.823	0.761
0.2	0	-1	2.2	21	0.755	0.741	0.711	0.65
0.2	-0.1	-1	2.5	30	0.761	0.745	0.706	0.641
0.2	-0.2	-1	1.9	21	0.737	0.721	0.694	0.639
0.2	-0.3	-1	2	15	0.759	0.741	0.721	0.662

(0.1,0.1,0.1,0.1)

0.025	0.3	-0.3	0	680	0.32	0.32	0.32	0.32
0.025	0.2	-0.2	0	675	0.325	0.325	0.325	0.325
0.025	0.1	-0.1	0	651	0.349	0.349	0.349	0.349
0.025	0	0.1	0	687	0.313	0.313	0.313	0.313
0.025	-0.1	0.2	0	657	0.343	0.343	0.343	0.343
0.025	-0.2	0.3	0	694	0.306	0.306	0.306	0.306
0.025	-0.3	0.5	0	685	0.315	0.315	0.315	0.315
0.05	0.3	-0.2	0	664	0.336	0.336	0.336	0.336
0.05	0.2	0	0	668	0.332	0.332	0.332	0.332
0.05	0.1	0.1	0	667	0.333	0.333	0.333	0.333
0.05	0	0.4	0	654	0.346	0.346	0.346	0.346

0.05	-0.1	0.6	0	668	0.332	0.332	0.332	0.332
0.05	-0.2	1	0	665	0.335	0.335	0.335	0.335
0.05	-0.3	1.4	0	674	0.326	0.326	0.326	0.326
0.075	0.3	0	0	687	0.313	0.313	0.312	0.312
0.075	0.2	0.3	0	653	0.347	0.347	0.347	0.347
0.075	0.1	0.9	0	669	0.331	0.331	0.331	0.331
0.075	0	1.8	0	674	0.326	0.326	0.326	0.326
0.075	-0.1	4.2	0	711	0.289	0.289	0.289	0.289
0.075	-0.2	22.9	0	665	0.335	0.335	0.335	0.335
0.075	-0.3	-10.9	0	681	0.319	0.319	0.319	0.319
0.1	0.3	0.7	0	698	0.302	0.302	0.302	0.302
0.1	0.2	2.7	0	684	0.316	0.316	0.316	0.316
0.1	0.1	-58.3	0	650	0.35	0.35	0.35	0.35
0.1	0	-4.4	0	653	0.347	0.347	0.347	0.347
0.1	-0.1	-2.7	0	662	0.338	0.338	0.338	0.338
0.1	-0.2	-2.2	0	654	0.346	0.346	0.346	0.346
0.1	-0.3	-1.9	0	656	0.344	0.344	0.344	0.344
0.2	0.3	-1.1	0	626	0.374	0.374	0.374	0.374
0.2	0.2	-1	0	692	0.064	0.064	0.064	0.064
0.2	0.1	-1	0	660	0.067	0.067	0.067	0.067
0.2	0	-1	0	677	0.021	0.021	0.021	0.021
0.2	-0.1	-1	0	697	0.021	0.021	0.021	0.021
0.2	-0.2	-1	0	648	0.022	0.022	0.022	0.022
0.2	-0.3	-1	0	679	0.02	0.02	0.02	0.02
(0.5,0.5,0.5,0.5)								
0.025	0.3	-0.3	0	112	0.866	0.866	0.782	0.781
0.025	0.2	-0.2	0	137	0.862	0.861	0.842	0.84
0.025	0.1	-0.1	0.1	136	0.864	0.863	0.864	0.86
0.025	0	0.1	0.1	128	0.872	0.872	0.872	0.868
0.025	-0.1	0.2	0.1	131	0.868	0.867	0.867	0.864
0.025	-0.2	0.3	0.1	124	0.876	0.876	0.873	0.87
0.025	-0.3	0.5	0.2	140	0.858	0.856	0.855	0.849
0.05	0.3	-0.2	0.1	145	0.826	0.824	0.767	0.759
0.05	0.2	0	0.2	134	0.866	0.864	0.852	0.849
0.05	0.1	0.1	0.2	133	0.867	0.864	0.867	0.861
0.05	0	0.4	0.3	122	0.878	0.878	0.875	0.871
0.05	-0.1	0.6	0.5	120	0.88	0.88	0.873	0.866
0.05	-0.2	1	0.7	114	0.885	0.884	0.883	0.88
0.05	-0.3	1.4	1	128	0.872	0.872	0.869	0.866
0.075	0.3	0	0.3	138	0.856	0.856	0.813	0.81
0.075	0.2	0.3	0.5	134	0.866	0.866	0.863	0.856
0.075	0.1	0.9	0.9	127	0.873	0.873	0.872	0.867
0.075	0	1.8	1.8	128	0.872	0.872	0.87	0.868

0.075	-0.1	4.2	4.2	113	0.885	0.883	0.88	0.873
0.075	-0.2	22.9	24.4	138	0.86	0.858	0.858	0.854
0.075	-0.3	-10.9	12.5	112	0.886	0.884	0.883	0.878
0.1	0.3	0.7	1.1	128	0.868	0.867	0.845	0.841
0.1	0.2	2.7	3.1	115	0.885	0.885	0.882	0.877
0.1	0.1	-58.3	65.7	121	0.879	0.879	0.878	0.876
0.1	0	-4.4	5	125	0.875	0.875	0.871	0.867
0.1	-0.1	-2.7	3.3	130	0.87	0.87	0.869	0.868
0.1	-0.2	-2.2	3	116	0.883	0.882	0.878	0.872
0.1	-0.3	-1.9	2.6	108	0.892	0.892	0.89	0.888
0.2	0.3	-1.1	1.5	110	0.89	0.89	0.875	0.868
0.2	0.2	-1	0.2	123	0.599	0.599	0.594	0.59
0.2	0.1	-1.1	0.2	139	0.606	0.606	0.599	0.594
0.2	0	-1	0.2	134	0.389	0.388	0.387	0.384
0.2	-0.1	-1	0.1	132	0.412	0.412	0.408	0.404
0.2	-0.2	-1	0.4	128	0.407	0.405	0.404	0.399
0.2	-0.3	-1	0.1	134	0.399	0.399	0.395	0.391
(0.1,0.9,0.9,0.9)								
0.025	0.3	-0.3	0	57	0.875	0.87	0.751	0.731
0.025	0.2	-0.2	0	48	0.94	0.936	0.896	0.88
0.025	0.1	-0.1	0	45	0.955	0.951	0.955	0.935
0.025	0	0	0.1	48	0.952	0.948	0.952	0.924
0.025	-0.1	0.1	0.1	45	0.951	0.947	0.939	0.919
0.025	-0.2	0.2	0.1	54	0.941	0.936	0.932	0.913
0.025	-0.3	0.3	0.2	56	0.937	0.93	0.924	0.903
0.05	0.3	-0.3	0.1	56	0.873	0.873	0.727	0.715
0.05	0.2	-0.2	0.2	41	0.945	0.942	0.904	0.884
0.05	0.1	0	0.2	53	0.947	0.943	0.947	0.926
0.05	0	0.1	0.4	54	0.946	0.944	0.935	0.908
0.05	-0.1	0.2	0.4	52	0.945	0.942	0.927	0.903
0.05	-0.2	0.3	0.7	73	0.922	0.917	0.91	0.891
0.05	-0.3	0.5	1	58	0.939	0.936	0.922	0.902
0.075	0.3	-0.2	0.3	59	0.9	0.897	0.799	0.782
0.075	0.2	-0.1	0.4	57	0.938	0.933	0.918	0.89
0.075	0.1	0.1	0.9	60	0.939	0.937	0.938	0.919
0.075	0	0.3	1.7	48	0.949	0.946	0.936	0.907
0.075	-0.1	0.4	4	57	0.939	0.935	0.93	0.914
0.075	-0.2	0.6	22.5	47	0.948	0.943	0.932	0.911
0.075	-0.3	0.3	11.7	55	0.943	0.941	0.928	0.91
0.1	0.3	-0.1	0.9	51	0.925	0.922	0.863	0.843
0.1	0.2	0	2.8	55	0.941	0.938	0.936	0.908
0.1	0.1	-0.1	58.5	50	0.947	0.942	0.943	0.923
0.1	0	0.1	4.8	50	0.948	0.946	0.935	0.916

0.1	-0.1	0.1	3.4	54	0.942	0.938	0.923	0.898
0.1	-0.2	0.2	3.3	61	0.937	0.935	0.912	0.885
0.1	-0.3	0.4	3.5	54	0.942	0.938	0.922	0.898
0.2	0.3	-0.2	3.7	49	0.942	0.934	0.922	0.897
0.2	0.2	-1.1	7.6	49	0.795	0.792	0.771	0.754
0.2	0.1	-1.1	2.6	61	0.752	0.751	0.733	0.716
0.2	0	-1	2.4	49	0.641	0.635	0.629	0.611
0.2	-0.1	-1	1.7	52	0.631	0.624	0.612	0.586
0.2	-0.2	-1	0.7	50	0.629	0.624	0.61	0.587
0.2	-0.3	-1	0.6	69	0.609	0.608	0.594	0.578
(0.5,0.5,0.5,0.9)								
0.025	0.3	-0.3	0	85	0.87	0.87	0.754	0.742
0.025	0.2	-0.2	0	72	0.923	0.92	0.884	0.876
0.025	0.1	-0.1	0.1	97	0.903	0.901	0.903	0.891
0.025	0	0	0.1	91	0.909	0.907	0.909	0.899
0.025	-0.1	0.2	0.1	86	0.913	0.912	0.907	0.899
0.025	-0.2	0.3	0.1	90	0.91	0.91	0.9	0.89
0.025	-0.3	0.5	0.2	76	0.922	0.92	0.907	0.889
0.05	0.3	-0.2	0.1	93	0.871	0.87	0.769	0.765
0.05	0.2	-0.1	0.2	102	0.891	0.891	0.875	0.865
0.05	0.1	0.1	0.3	81	0.919	0.917	0.919	0.905
0.05	0	0.4	0.3	82	0.916	0.914	0.91	0.898
0.05	-0.1	0.3	0.5	88	0.91	0.908	0.9	0.887
0.05	-0.2	1	0.7	75	0.923	0.921	0.917	0.909
0.05	-0.3	1.4	1	71	0.929	0.929	0.922	0.915
0.075	0.3	0	0.3	95	0.887	0.886	0.827	0.823
0.075	0.2	0.3	0.5	82	0.917	0.916	0.909	0.9
0.075	0.1	0.9	1	73	0.926	0.925	0.924	0.914
0.075	0	1.8	1.8	89	0.909	0.907	0.901	0.887
0.075	-0.1	4.2	4.3	83	0.912	0.907	0.906	0.893
0.075	-0.2	22.9	24.5	76	0.923	0.922	0.913	0.902
0.075	-0.3	-10.9	12.7	67	0.932	0.931	0.923	0.913
0.1	0.3	-0.1	1.1	82	0.91	0.909	0.874	0.866
0.1	0.2	2.7	3.1	98	0.902	0.9	0.899	0.89
0.1	0.1	-0.2	65.8	78	0.921	0.92	0.915	0.903
0.1	0	-4.4	5.3	85	0.914	0.913	0.907	0.898
0.1	-0.1	-2.7	3.7	91	0.908	0.907	0.897	0.885
0.1	-0.2	-2.2	3.5	82	0.918	0.918	0.913	0.908
0.1	-0.3	0.3	3.6	86	0.913	0.912	0.902	0.89
0.2	0.3	-1.1	3.8	82	0.915	0.913	0.903	0.896
0.2	0.2	-1.1	6.8	87	0.699	0.697	0.683	0.668
0.2	0.1	-1.1	1.7	78	0.697	0.696	0.69	0.685
0.2	0	-1	0.9	95	0.516	0.512	0.504	0.49

	0.2	-0.1	-1	0.6	75	0.512	0.509	0.504	0.493
	0.2	-0.2	-1	0.7	83	0.537	0.533	0.532	0.523
	0.2	-0.3	-1	0.3	83	0.521	0.521	0.512	0.503
(0.1,0.5,0.5,0.5)									
	0.025	0.3	-0.3	0	199	0.791	0.791	0.754	0.752
	0.025	0.2	-0.2	0	195	0.804	0.804	0.797	0.796
	0.025	0.1	-0.1	0.1	172	0.828	0.828	0.828	0.827
	0.025	0	0.1	0.1	207	0.793	0.793	0.793	0.79
	0.025	-0.1	0.2	0.1	175	0.825	0.825	0.825	0.825
	0.025	-0.2	0.3	0.1	200	0.799	0.798	0.797	0.793
	0.025	-0.3	0.5	0.2	189	0.811	0.811	0.809	0.807
	0.05	0.3	-0.2	0.1	189	0.798	0.798	0.773	0.768
	0.05	0.2	0	0.2	197	0.802	0.802	0.798	0.797
	0.05	0.1	0.1	0.2	191	0.809	0.809	0.809	0.807
	0.05	0	0.4	0.3	185	0.815	0.815	0.815	0.813
	0.05	-0.1	0.6	0.5	197	0.803	0.803	0.803	0.803
	0.05	-0.2	1	0.7	191	0.809	0.809	0.807	0.805
	0.05	-0.3	1.4	1	175	0.825	0.825	0.824	0.823
	0.075	0.3	0	0.3	186	0.812	0.812	0.784	0.783
	0.075	0.2	0.3	0.4	183	0.817	0.817	0.811	0.81
	0.075	0.1	0.9	0.8	198	0.802	0.802	0.801	0.8
	0.075	0	1.8	1.75	170	0.83	0.83	0.826	0.821
	0.075	-0.1	4.2	4.2	211	0.789	0.789	0.787	0.785
	0.075	-0.2	22.9	24.4	186	0.814	0.814	0.813	0.812
	0.075	-0.3	-10.9	12.4	221	0.779	0.779	0.778	0.777
	0.1	0.3	0.7	0.8	199	0.796	0.796	0.795	0.791
	0.1	0.2	2.7	3.1	182	0.818	0.818	0.818	0.818
	0.1	0.1	-58.3	63.775	198	0.802	0.802	0.802	0.802
	0.1	0	-4.4	5	191	0.809	0.809	0.808	0.807
	0.1	-0.1	-2.7	3	177	0.823	0.823	0.819	0.815
	0.1	-0.2	-2.2	2.8	193	0.807	0.807	0.807	0.807
	0.1	-0.3	-1.9	2.5	203	0.797	0.797	0.793	0.789
	0.2	0.3	-1.1	1.2	204	0.796	0.796	0.794	0.794
	0.2	0.2	-1	0.1	192	0.469	0.469	0.466	0.465
	0.2	0.1	-1	0.2	175	0.463	0.463	0.462	0.461
	0.2	0	-1	0.2	198	0.31	0.309	0.309	0.307
	0.2	-0.1	-1	0.1	189	0.311	0.311	0.311	0.311
	0.2	-0.2	-1	0.1	209	0.295	0.295	0.295	0.295
	0.2	-0.3	-1	0.1	193	0.29	0.289	0.289	0.287
(0.1,0.1,0.1,0.9)									
	0.025	0.3	-0.3	0	287	0.711	0.711	0.693	0.693
	0.025	0.2	-0.2	0	284	0.716	0.716	0.712	0.712
	0.025	0.1	-0.1	0	307	0.693	0.693	0.693	0.692

0.025	0	0.1	0.1	287	0.713	0.713	0.713	0.713
0.025	-0.1	0.2	0.1	289	0.711	0.711	0.711	0.711
0.025	-0.2	0.3	0.1	261	0.739	0.739	0.739	0.739
0.025	-0.3	0.5	0.2	281	0.719	0.719	0.719	0.719
0.05	0.3	-0.2	0.1	293	0.704	0.704	0.692	0.691
0.05	0.2	0	0.2	290	0.71	0.71	0.706	0.706
0.05	0.1	0.1	0.2	284	0.716	0.716	0.716	0.716
0.05	0	0.4	0.3	269	0.731	0.731	0.731	0.731
0.05	-0.1	0.6	0.4	284	0.716	0.716	0.716	0.716
0.05	-0.2	1	0.7	281	0.719	0.719	0.719	0.719
0.05	-0.3	1.4	0.9	299	0.701	0.701	0.701	0.701
0.075	0.3	0	0.2	291	0.707	0.707	0.691	0.691
0.075	0.2	0.3	0.4	266	0.734	0.734	0.733	0.733
0.075	0.1	0.9	0.9	291	0.709	0.709	0.709	0.708
0.075	0	1.8	1.6	288	0.712	0.712	0.711	0.71
0.075	-0.1	4.2	3.9	304	0.696	0.696	0.696	0.696
0.075	-0.2	22.9	22.4	268	0.732	0.732	0.732	0.732
0.075	-0.3	-10.9	11.4	321	0.679	0.679	0.679	0.679
0.1	0.3	0.7	0.9	303	0.696	0.696	0.685	0.685
0.1	0.2	2.7	2.7	287	0.713	0.713	0.713	0.713
0.1	0.1	-58.3	58.3	265	0.735	0.735	0.735	0.735
0.1	0	-4.4	4.5	290	0.71	0.71	0.71	0.71
0.1	-0.1	-2.7	3	269	0.731	0.731	0.731	0.731
0.1	-0.2	-2.2	2.7	295	0.705	0.705	0.705	0.705
0.1	-0.3	-1.9	2.5	271	0.729	0.729	0.729	0.729
0.2	0.3	-1.1	1.1	277	0.723	0.723	0.722	0.722
0.2	0.2	-1	0.1	292	0.312	0.311	0.312	0.311
0.2	0.1	-1	0.1	295	0.335	0.335	0.334	0.334
0.2	0	-1	0	304	0.232	0.232	0.232	0.232
0.2	-0.1	-1	0.1	296	0.251	0.251	0.251	0.251
0.2	-0.2	-1	0.4	312	0.239	0.239	0.238	0.238
0.2	-0.3	-1	0.3	270	0.265	0.265	0.265	0.265

Table A4-2: 4 inspectors, 20 defects and 0.1 degree of difficulty.

4 ins/20 def/0.1 dif

(0.1,0.4,0.6,0.9)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA(.57)	RDA (.57)
0.025	0.3	-0.25	0.05	13	0.986	0.986	0.962	0.962
0.025	0.2	-0.15	0.05	22	0.978	0.978	0.978	0.978
0.025	0.1	-0.05	0.05	22	0.978	0.978	0.978	0.978
0.025	0	0.1	0.1	19	0.981	0.981	0.981	0.981
0.025	-0.1	0.2	0.05	10	0.99	0.99	0.99	0.99

0.025	-0.2	0.35	0.1	8	0.992	0.992	0.992	0.992
0.025	-0.3	0.45	0.15	15	0.985	0.985	0.985	0.985
0.05	0.3	-0.2	0.1	23	0.977	0.977	0.969	0.969
0.05	0.2	-0.05	0.2	12	0.988	0.988	0.987	0.987
0.05	0.1	0.15	0.25	19	0.981	0.981	0.981	0.981
0.05	0	0.1	0.45	19	0.981	0.981	0.981	0.981
0.05	-0.1	0.3	0.55	15	0.985	0.985	0.985	0.985
0.05	-0.2	0.45	0.85	16	0.984	0.984	0.984	0.984
0.05	-0.3	0.55	1.15	18	0.982	0.982	0.982	0.982
0.075	0.3	-0.15	0.35	14	0.986	0.986	0.98	0.98
0.075	0.2	-0.05	0.6	12	0.988	0.988	0.988	0.988
0.075	0.1	0.2	1.0375	14	0.986	0.986	0.986	0.986
0.075	0	0.4	2	20	0.98	0.98	0.98	0.98
0.075	-0.1	0.65	4.5	9	0.991	0.991	0.991	0.991
0.075	-0.2	1	24.8	21	0.979	0.979	0.979	0.979
0.075	-0.3	-1.25	12.8	21	0.979	0.979	0.979	0.979
0.1	0.3	-0.05	1.15	9	0.991	0.991	0.99	0.99
0.1	0.2	0.2	3.3	15	0.985	0.985	0.985	0.985
0.1	0.1	-1.15	65.8	18	0.982	0.982	0.982	0.982
0.1	0	-1.1	5.45	18	0.982	0.982	0.982	0.982
0.1	-0.1	-1.1	3.6125	12	0.988	0.988	0.988	0.988
0.1	-0.2	-1.05	3.5	25	0.975	0.975	0.974	0.973
0.1	-0.3	-1.05	3.2125	18	0.982	0.982	0.982	0.982
0.2	0.3	-1.05	1.1	15	0.802	0.802	0.8	0.8
0.2	0.2	-1.05	0.5	12	0.835	0.835	0.834	0.834
0.2	0.1	-1.15	0.4	15	0.733	0.733	0.732	0.732
0.2	0	-1.1	0.35	18	0.713	0.713	0.713	0.713
0.2	-0.1	-1.05	0.35	20	0.74	0.74	0.736	0.736
0.2	-0.2	-1.05	0.3	14	0.727	0.727	0.718	0.718
0.2	-0.3	-1.05	0.25	21	0.713	0.713	0.709	0.709
(0.1,0.1,0.9,0.9)								
0.025	0.3	-0.3	0.05	18	0.979	0.979	0.959	0.959
0.025	0.2	-0.2	0.05	16	0.984	0.984	0.982	0.982
0.025	0.1	-0.05	0.05	15	0.985	0.985	0.985	0.985
0.025	0	0.05	0.1	15	0.985	0.985	0.985	0.985
0.025	-0.1	0.15	0.05	15	0.985	0.985	0.985	0.985
0.025	-0.2	0.3	0.1	11	0.989	0.989	0.989	0.989
0.025	-0.3	0.4	0.15	10	0.99	0.99	0.99	0.99
0.05	0.3	-0.2	0.1	20	0.98	0.98	0.969	0.969
0.05	0.2	-0.1	0.15	15	0.985	0.985	0.983	0.983
0.05	0.1	0.05	0.25	20	0.98	0.98	0.98	0.98
0.05	0	0.15	0.35	19	0.981	0.981	0.981	0.981
0.05	-0.1	0.25	0.5	19	0.981	0.981	0.981	0.981

0.05	-0.2	0.45	0.7	14	0.986	0.986	0.986	0.986
0.05	-0.3	0.6	1.05	20	0.98	0.98	0.98	0.98
0.075	0.3	-0.15	0.35	14	0.986	0.986	0.979	0.979
0.075	0.2	-0.05	0.55	13	0.987	0.987	0.987	0.987
0.075	0.1	0.15	1.05	15	0.985	0.985	0.985	0.985
0.075	0	0.3	1.75	14	0.986	0.986	0.986	0.986
0.075	-0.1	0.55	4.1	17	0.983	0.983	0.982	0.981
0.075	-0.2	0.8	22.75	25	0.975	0.975	0.974	0.973
0.075	-0.3	0.3	12.85	13	0.987	0.987	0.987	0.987
0.1	0.3	-0.05	0.95	11	0.989	0.989	0.988	0.988
0.1	0.2	0.2	3.25	18	0.982	0.982	0.982	0.982
0.1	0.1	-0.1	58.65	18	0.982	0.982	0.982	0.982
0.1	0	-0.375	5.05	12	0.988	0.988	0.988	0.988
0.1	-0.1	0.15	3.75	19	0.981	0.981	0.981	0.981
0.1	-0.2	-1.05	3.7	18	0.982	0.982	0.982	0.982
0.1	-0.3	-0.2	3.95	17	0.983	0.983	0.983	0.983
0.2	0.3	-1.05	1.25	15	0.827	0.827	0.826	0.826
0.2	0.2	-1.15	0.6	13	0.822	0.822	0.82	0.82
0.2	0.1	-1.15	0.65	15	0.755	0.755	0.755	0.755
0.2	0	-1.1	0.5	16	0.761	0.761	0.761	0.761
0.2	-0.1	-1.05	0.4	12	0.72	0.72	0.719	0.719
0.2	-0.2	-1.05	0.35	14	0.754	0.754	0.754	0.754
0.2	-0.3	-1.05	0.3	14	0.765	0.765	0.762	0.762
(0.5,0.5,0.9,0.9)								
0.025	0.3	-0.3	0.05	0	0.983	0.983	0.898	0.897
0.025	0.2	-0.2	0.05	1	0.996	0.996	0.984	0.981
0.025	0.1	-0.05	0.05	1	0.999	0.999	0.997	0.995
0.025	0	0.05	0.1	2	0.998	0.998	0.998	0.997
0.025	-0.1	0.15	0.1	1	0.999	0.999	0.999	0.999
0.025	-0.2	0.25	0.15	3	0.997	0.997	0.997	0.997
0.025	-0.3	0.4	0.2	3	0.997	0.997	0.997	0.997
0.05	0.3	-0.25	0.1	3	0.993	0.993	0.946	0.945
0.05	0.2	-0.1	0.15	1	0.999	0.999	0.985	0.985
0.05	0.1	0.05	0.25	6	0.994	0.994	0.994	0.993
0.05	0	0.15	0.35	5	0.995	0.995	0.993	0.988
0.05	-0.1	0.3	0.45	5	0.995	0.995	0.995	0.995
0.05	-0.2	0.4	0.75	3	0.997	0.997	0.997	0.997
0.05	-0.3	0.55	1.1	2	0.998	0.998	0.996	0.994
0.075	0.3	-0.2	0.25	3	0.995	0.995	0.964	0.964
0.075	0.2	-0.05	0.55	5	0.995	0.995	0.991	0.991
0.075	0.1	0.2	0.9	1	0.999	0.999	0.998	0.997
0.075	0	0.35	1.9	3	0.997	0.997	0.995	0.993
0.075	-0.1	0.5	4.4	1	0.999	0.999	0.996	0.993

0.075	-0.2	0.8	24.65	3	0.997	0.997	0.995	0.993
0.075	-0.3	0.4	12.8	6	0.994	0.994	0.994	0.994
0.1	0.3	-0.05	1.1	3	0.996	0.996	0.983	0.982
0.1	0.2	0.15	3.2	2	0.998	0.998	0.995	0.993
0.1	0.1	-0.05	58.65	2	0.998	0.998	0.995	0.991
0.1	0	0.1	5.55	3	0.997	0.997	0.996	0.995
0.1	-0.1	0.2	4.05	1	0.999	0.999	0.999	0.999
0.1	-0.2	0.4	3.7	6	0.994	0.994	0.994	0.994
0.1	-0.3	0.5	3.95	5	0.995	0.995	0.993	0.991
0.2	0.3	-1.05	1.8	3	0.939	0.939	0.922	0.92
0.2	0.2	-1.3	2.05	3	0.947	0.947	0.94	0.937
0.2	0.1	-1.15	1.85	3	0.902	0.902	0.893	0.89
0.2	0	-1.1	2	4	0.881	0.881	0.874	0.872
0.2	-0.1	-1.05	1.8	1	0.89	0.89	0.884	0.882
0.2	-0.2	-1.15	1.5	3	0.907	0.907	0.898	0.896
0.2	-0.3	-1.05	1.65	2	0.89	0.89	0.876	0.876
(0.9,0.9,0.9,0.9)								
0.025	0.3	-0.3	0	1	0.931	0.931	0.738	0.733
0.025	0.2	-0.2	0.05	2	0.989	0.989	0.936	0.927
0.025	0.1	-0.1	0.05	0	1	0.999	0.984	0.977
0.025	0	0.05	0.05	1	0.999	0.998	0.999	0.993
0.025	-0.1	0.15	0.05	0	1	1	0.994	0.986
0.025	-0.2	0.25	0.1	1	0.999	0.999	0.992	0.985
0.025	-0.3	0.35	0.1	1	0.998	0.997	0.991	0.983
0.05	0.3	-0.25	0.05	0	0.978	0.978	0.849	0.842
0.05	0.2	-0.15	0.1	3	0.984	0.983	0.95	0.935
0.05	0.1	0	0.15	0	1	0.999	0.995	0.987
0.05	0	0.1	0.2	0	0.999	0.998	0.999	0.991
0.05	-0.1	0.25	0.25	4	0.996	0.996	0.987	0.978
0.05	-0.2	0.35	0.35	1	0.997	0.995	0.989	0.979
0.05	-0.3	0.5	0.45	0	0.999	0.998	0.99	0.98
0.075	0.3	-0.2	0.15	1	0.987	0.987	0.917	0.906
0.075	0.2	-0.05	0.25	0	0.997	0.997	0.984	0.978
0.075	0.1	0.1	0.4	2	0.998	0.998	0.988	0.981
0.075	0	0.25	0.55	1	0.999	0.999	0.992	0.984
0.075	-0.1	0.4	0.9	0	1	1	0.995	0.99
0.075	-0.2	0.6	1.25	0	0.999	0.998	0.993	0.986
0.075	-0.3	0.5	1.05	0	0.999	0.998	0.988	0.977
0.1	0.3	-0.1	0.4	0	0.995	0.994	0.958	0.949
0.1	0.2	0.05	0.65	0	0.999	0.998	0.976	0.967
0.1	0.1	0.05	0.65	1	0.998	0.997	0.992	0.984
0.1	0	0.25	0.85	0	1	1	0.99	0.981
0.1	-0.1	0.4	1.3875	2	0.998	0.998	0.991	0.985

	0.1	-0.2	0.55	1.65	0	0.999	0.998	0.983	0.966
	0.1	-0.3	0.75	2.65	1	0.999	0.999	0.995	0.991
	0.2	0.3	-0.15	2.1	0	0.982	0.982	0.954	0.949
	0.2	0.2	-0.7	2.5	0	0.976	0.976	0.95	0.944
	0.2	0.1	-0.5	2.3	1	0.961	0.961	0.938	0.933
	0.2	0	-1	2.675	1	0.957	0.957	0.939	0.932
	0.2	-0.1	-1.05	3	0	0.959	0.959	0.933	0.928
	0.2	-0.2	-1	3.15	1	0.962	0.962	0.938	0.931
	0.2	-0.3	-1.05	3.05	0	0.958	0.957	0.924	0.915
(0.1,0.1,0.1,0.1)									
	0.025	0.3	-0.2	0	449	0.551	0.551	0.551	0.551
	0.025	0.2	-0.05	0	452	0.548	0.548	0.548	0.548
	0.025	0.1	0.15	0	466	0.534	0.534	0.534	0.534
	0.025	0	0.35	0	445	0.555	0.555	0.555	0.555
	0.025	-0.1	0.6	0	432	0.568	0.568	0.568	0.568
	0.025	-0.2	0.9	0	419	0.581	0.581	0.581	0.581
	0.025	-0.3	1.3	0	467	0.533	0.533	0.533	0.533
	0.05	0.3	0.5	0	430	0.57	0.57	0.57	0.57
	0.05	0.2	1.65	0	415	0.585	0.585	0.585	0.585
	0.05	0.1	7.6	0	432	0.568	0.568	0.568	0.568
	0.05	0	-9.45	0	453	0.547	0.547	0.547	0.547
	0.05	-0.1	-3.95	0	461	0.539	0.539	0.539	0.539
	0.05	-0.2	-2.8	0	451	0.549	0.549	0.549	0.549
	0.05	-0.3	-2.3	0	439	0.561	0.561	0.561	0.561
	0.075	0.3	-3.1	0	453	0.547	0.547	0.547	0.547
	0.075	0.2	-1.95	0	420	0.58	0.58	0.58	0.58
	0.075	0.1	-1.65	0	448	0.552	0.552	0.552	0.552
	0.075	0	-1.45	0	416	0.584	0.584	0.584	0.584
	0.075	-0.1	-1.35	0	455	0.545	0.545	0.545	0.545
	0.075	-0.2	-1.3	0	480	0.52	0.52	0.52	0.52
	0.075	-0.3	-1.25	0.05	468	0.532	0.532	0.532	0.532
	0.1	0.3	-1.35	0	466	0.534	0.534	0.534	0.534
	0.1	0.2	-1.25	0	436	0.564	0.564	0.564	0.564
	0.1	0.1	-1.15	0.1	450	0.55	0.55	0.55	0.55
	0.1	0	-1.1	0.1	470	0.53	0.53	0.53	0.53
	0.1	-0.1	-1.1	0.05	440	0.56	0.56	0.56	0.56
	0.1	-0.2	-1.05	0.05	441	0.559	0.559	0.559	0.559
	0.1	-0.3	-1.05	0.05	450	0.55	0.55	0.55	0.55
	0.2	0.3	-1	0	444	0.077	0.077	0.077	0.077
	0.2	0.2	-0.95	0.05	459	0.081	0.081	0.081	0.081
	0.2	0.1	-0.95	0.05	450	0.049	0.049	0.049	0.049
	0.2	0	-0.95	0.05	453	0.036	0.036	0.036	0.036
	0.2	-0.1	-0.95	0.05	419	0.056	0.056	0.056	0.056

	0.2	-0.2	-0.95	0.05	462	0.039	0.039	0.039	0.039
	0.2	-0.3	-0.95	0.05	440	0.042	0.042	0.042	0.042
(0.5,0.5,0.5,0.5)									
	0.025	0.3	-0.25	0.1	18	0.982	0.982	0.963	0.963
	0.025	0.2	-0.15	0.15	19	0.981	0.981	0.978	0.978
	0.025	0.1	-0.05	0.1	13	0.987	0.987	0.985	0.985
	0.025	0	0.1	0.05	13	0.987	0.987	0.987	0.987
	0.025	-0.1	0.2	0.1	15	0.985	0.985	0.985	0.985
	0.025	-0.2	0.35	0.15	12	0.988	0.988	0.988	0.988
	0.025	-0.3	0.45	0.95	23	0.977	0.977	0.977	0.977
	0.05	0.3	-0.2	0.75	16	0.984	0.984	0.976	0.976
	0.05	0.2	0	1.75	16	0.984	0.984	0.983	0.983
	0.05	0.1	0.15	7.6	19	0.981	0.981	0.981	0.98
	0.05	0	0.15	9.85	20	0.98	0.98	0.98	0.98
	0.05	-0.1	0.275	4.6	10	0.99	0.99	0.99	0.99
	0.05	-0.2	0.5	3.8	10	0.99	0.99	0.99	0.99
	0.05	-0.3	0.6	3.75	12	0.988	0.988	0.988	0.988
	0.075	0.3	-0.2	3.15	15	0.984	0.984	0.985	0.984
	0.075	0.2	0	2.35	12	0.988	0.988	0.987	0.987
	0.075	0.1	0.15	2.6	18	0.982	0.982	0.982	0.982
	0.075	0	0.45	3.45	16	0.984	0.984	0.984	0.984
	0.075	-0.1	0.5	5.95	18	0.982	0.982	0.982	0.982
	0.075	-0.2	1.1	26.3	13	0.987	0.987	0.987	0.987
	0.075	-0.3	-1.3	12.45	11	0.989	0.989	0.989	0.989
	0.1	0.3	-0.05	1.6	24	0.976	0.976	0.974	0.974
	0.1	0.2	0.2	4.35	12	0.988	0.988	0.988	0.988
	0.1	0.1	-1.25	65.75	16	0.984	0.984	0.983	0.983
	0.1	0	-1.2	5.2	20	0.98	0.98	0.98	0.98
	0.1	-0.1	-1.15	3.4875	14	0.986	0.986	0.986	0.986
	0.1	-0.2	-1.1	2.9	15	0.985	0.985	0.985	0.985
	0.1	-0.3	-1.1	2.7	15	0.985	0.985	0.985	0.985
	0.2	0.3	-1.1	0.575	16	0.801	0.801	0.796	0.796
	0.2	0.2	-1.05	0.5	15	0.798	0.798	0.797	0.797
	0.2	0.1	-1.15	0.4	16	0.731	0.731	0.73	0.73
	0.2	0	-1.1	0.35	24	0.722	0.722	0.718	0.718
	0.2	-0.1	-1.05	0.35	20	0.717	0.717	0.713	0.713
	0.2	-0.2	-1.05	0.3	17	0.701	0.701	0.697	0.697
	0.2	-0.3	-1.05	0.3	18	0.713	0.713	0.706	0.706
(0.1,0.9,0.9,0.9)									
	0.025	0.3	-0.3	0.05	4	0.985	0.985	0.909	0.908
	0.025	0.2	-0.2	0.05	2	0.998	0.998	0.981	0.981
	0.025	0.1	-0.05	0.05	2	0.998	0.998	0.997	0.996
	0.025	0	0.05	0.1	1	0.999	0.999	0.999	0.997

0.025	-0.1	0.15	0.1	0	1	1	0.997	0.994
0.025	-0.2	0.25	0.15	2	0.998	0.998	0.996	0.994
0.025	-0.3	0.35	0.2	2	0.998	0.998	0.998	0.998
0.05	0.3	-0.25	0.1	1	0.994	0.994	0.941	0.941
0.05	0.2	-0.1	0.15	5	0.993	0.993	0.982	0.98
0.05	0.1	0	0.25	3	0.997	0.997	0.995	0.994
0.05	0	0.15	0.3	2	0.998	0.998	0.997	0.995
0.05	-0.1	0.25	0.45	5	0.995	0.995	0.994	0.993
0.05	-0.2	0.4	0.7	3	0.997	0.997	0.996	0.995
0.05	-0.3	0.55	0.5	6	0.994	0.994	0.993	0.992
0.075	0.3	-0.2	0.25	1	0.994	0.993	0.978	0.975
0.075	0.2	-0.05	0.25	5	0.995	0.995	0.993	0.993
0.075	0.1	0.1	0.4	5	0.995	0.995	0.995	0.995
0.075	0	0.25	0.8	3	0.997	0.997	0.996	0.995
0.075	-0.1	0.45	0.9	4	0.996	0.996	0.995	0.994
0.075	-0.2	0.65	1.25	6	0.994	0.994	0.994	0.994
0.075	-0.3	0.45	12.1	0	1	1	0.997	0.994
0.1	0.3	-0.05	0.5	4	0.995	0.995	0.986	0.985
0.1	0.2	0.15	0.75	2	0.998	0.998	0.997	0.997
0.1	0.1	0	58.75	3	0.997	0.997	0.996	0.996
0.1	0	0.15	1.95	2	0.998	0.998	0.998	0.998
0.1	-0.1	0.3	2.4	5	0.995	0.995	0.993	0.991
0.1	-0.2	0.45	2.8	2	0.998	0.998	0.998	0.998
0.1	-0.3	0.45	3.25	1	0.999	0.999	0.998	0.997
0.2	0.3	-1	1.7	2	0.962	0.962	0.951	0.95
0.2	0.2	-1.15	2.4	1	0.957	0.957	0.946	0.945
0.2	0.1	-1.15	2.0875	2	0.904	0.904	0.9	0.899
0.2	0	-1.2	2.1	0	0.928	0.928	0.926	0.926
0.2	-0.1	-1.05	2.0375	6	0.893	0.893	0.889	0.888
0.2	-0.2	-1.1	1.65	2	0.919	0.919	0.907	0.906
0.2	-0.3	-1.05	1.7	4	0.898	0.898	0.886	0.884
(0.5,0.5,0.5,0.9)								
0.025	0.3	-0.3	0.05	6	0.989	0.989	0.942	0.942
0.025	0.2	-0.15	0.05	7	0.993	0.993	0.989	0.989
0.025	0.1	-0.05	0.05	4	0.996	0.996	0.995	0.995
0.025	0	0.05	0.1	6	0.994	0.994	0.994	0.994
0.025	-0.1	0.15	0.1	8	0.992	0.992	0.992	0.992
0.025	-0.2	0.3	0.1	7	0.993	0.993	0.992	0.991
0.025	-0.3	0.4	0.15	10	0.99	0.99	0.99	0.99
0.05	0.3	-0.2	0.1	5	0.994	0.994	0.966	0.966
0.05	0.2	-0.1	0.2	8	0.992	0.992	0.989	0.989
0.05	0.1	0.05	0.3	5	0.995	0.995	0.995	0.995
0.05	0	0.15	0.4	5	0.995	0.995	0.995	0.995

0.05	-0.1	0.25	0.5	4	0.996	0.996	0.996	0.996
0.05	-0.2	0.45	0.75	5	0.995	0.995	0.994	0.993
0.05	-0.3	0.55	1.1	6	0.994	0.994	0.994	0.994
0.075	0.3	-0.2	0.35	4	0.994	0.994	0.983	0.983
0.075	0.2	0	0.55	6	0.994	0.994	0.992	0.992
0.075	0.1	0.2	1	8	0.992	0.992	0.991	0.99
0.075	0	0.4	1.95	4	0.996	0.996	0.996	0.996
0.075	-0.1	0.525	4.45	12	0.988	0.988	0.988	0.988
0.075	-0.2	1	24.75	5	0.995	0.995	0.995	0.995
0.075	-0.3	-0.225	12.6875	14	0.986	0.986	0.986	0.986
0.1	0.3	0	1.1	4	0.996	0.996	0.991	0.99
0.1	0.2	0.1	3.3	9	0.991	0.991	0.99	0.99
0.1	0.1	-0.2	65.9	7	0.993	0.993	0.993	0.993
0.1	0	-0.35	5.3	3	0.997	0.997	0.997	0.997
0.1	-0.1	-1.1	3.7	5	0.995	0.995	0.995	0.995
0.1	-0.2	0.05	3.35	8	0.992	0.992	0.991	0.99
0.1	-0.3	0.1	3.4	12	0.988	0.988	0.988	0.988
0.2	0.3	-1.1	1.45	3	0.888	0.888	0.882	0.882
0.2	0.2	-1.15	1.2	12	0.895	0.895	0.889	0.889
0.2	0.1	-1.15	1.2	15	0.803	0.803	0.801	0.801
0.2	0	-1.1	1.3	3	0.82	0.82	0.818	0.818
0.2	-0.1	-1.05	1	6	0.819	0.819	0.816	0.816
0.2	-0.2	-1.05	0.35	8	0.833	0.833	0.823	0.822
0.2	-0.3	-1.05	0.3	5	0.807	0.807	0.798	0.798
(0.1,0.5,0.5,0.5)								
0.025	0.3	-0.25	0.1	35	0.964	0.964	0.961	0.961
0.025	0.2	-0.15	0.15	41	0.959	0.959	0.959	0.959
0.025	0.1	-0.05	0.2	43	0.957	0.957	0.957	0.957
0.025	0	0.1	0.3	41	0.959	0.959	0.959	0.959
0.025	-0.1	0.2	0.45	29	0.971	0.971	0.971	0.971
0.025	-0.2	0.35	0.65	38	0.962	0.962	0.962	0.962
0.025	-0.3	0.5	0.9	38	0.962	0.962	0.962	0.962
0.05	0.3	-0.2	0.75	45	0.955	0.955	0.95	0.95
0.05	0.2	0	1.75	47	0.953	0.953	0.952	0.952
0.05	0.1	0.2	7.6	41	0.959	0.959	0.959	0.959
0.05	0	0.1	9.85	35	0.965	0.965	0.965	0.965
0.05	-0.1	0.25	4.6	48	0.952	0.952	0.952	0.952
0.05	-0.2	0.35	3.8	51	0.949	0.949	0.949	0.949
0.05	-0.3	0.5	3.75	44	0.956	0.956	0.956	0.956
0.075	0.3	-0.2	3.15	34	0.966	0.966	0.966	0.966
0.075	0.2	-0.1	2.35	37	0.963	0.963	0.963	0.963
0.075	0.1	0	2.6	37	0.963	0.963	0.963	0.963
0.075	0	0.2	3.45	43	0.957	0.957	0.957	0.957

0.075	-0.1	0.45	6.025	34	0.966	0.966	0.966	0.966
0.075	-0.2	0.55	26.3	29	0.971	0.971	0.971	0.971
0.075	-0.3	-1.3	12.25	39	0.961	0.961	0.961	0.961
0.1	0.3	-0.05	2.2	49	0.951	0.951	0.951	0.951
0.1	0.2	0.15	4.35	49	0.951	0.951	0.951	0.951
0.1	0.1	-1.25	65.6	43	0.957	0.957	0.957	0.957
0.1	0	-1.2	4.95	41	0.959	0.959	0.959	0.959
0.1	-0.1	-1.15	3.2	39	0.961	0.961	0.961	0.961
0.1	-0.2	-1.1	2.65	32	0.968	0.968	0.968	0.968
0.1	-0.3	-1.1	2.5	48	0.952	0.952	0.952	0.952
0.2	0.3	-1.05	0.4	39	0.691	0.691	0.689	0.689
0.2	0.2	-1.05	0.35	36	0.687	0.687	0.687	0.687
0.2	0.1	-1	0.3	32	0.566	0.566	0.566	0.566
0.2	0	-1	0.2	36	0.556	0.556	0.556	0.556
0.2	-0.1	-1	0.25	38	0.596	0.596	0.595	0.595
0.2	-0.2	-1	0.15	51	0.534	0.534	0.534	0.534
0.2	-0.3	-1	0.2	27	0.584	0.584	0.582	0.582
(0.1,0.1,0.1,0.9)								
0.025	0.3	-0.3	0.1	81	0.919	0.919	0.919	0.919
0.025	0.2	-0.15	0.15	85	0.915	0.915	0.915	0.915
0.025	0.1	-0.05	0.25	75	0.925	0.925	0.925	0.925
0.025	0	0.1	0.3	69	0.931	0.931	0.931	0.931
0.025	-0.1	0.2	0.45	98	0.902	0.902	0.902	0.902
0.025	-0.2	0.35	0.65	94	0.906	0.906	0.906	0.906
0.025	-0.3	0.45	0.95	79	0.921	0.921	0.921	0.921
0.05	0.3	-0.2	0.75	88	0.912	0.912	0.911	0.911
0.05	0.2	0	1.75	77	0.923	0.923	0.923	0.923
0.05	0.1	0.15	7.6	89	0.911	0.911	0.911	0.911
0.05	0	0.15	9.8	94	0.906	0.906	0.906	0.906
0.05	-0.1	0.2	4.55	83	0.917	0.917	0.917	0.917
0.05	-0.2	0.35	3.75	100	0.9	0.9	0.9	0.9
0.05	-0.3	0.5	3.7	80	0.92	0.92	0.92	0.92
0.075	0.3	-0.2	3.1	97	0.903	0.903	0.903	0.903
0.075	0.2	-0.1	2.3	81	0.919	0.919	0.919	0.919
0.075	0.1	0	2.5	70	0.93	0.93	0.93	0.93
0.075	0	0.2	3.25	67	0.933	0.933	0.933	0.933
0.075	-0.1	0.4	5.55	93	0.907	0.907	0.907	0.907
0.075	-0.2	0.55	24.25	79	0.921	0.921	0.921	0.921
0.075	-0.3	-1.25	11.65	88	0.912	0.912	0.912	0.912
0.1	0.3	-0.15	2.05	81	0.919	0.919	0.919	0.919
0.1	0.2	0.05	3.95	93	0.907	0.907	0.907	0.907
0.1	0.1	-1.15	58.35	90	0.91	0.91	0.91	0.91
0.1	0	-1.1	4.75	75	0.925	0.925	0.925	0.925

0.1	-0.1	-1.1	3.2	96	0.904	0.904	0.904	0.904
0.1	-0.2	-1.05	2.85	75	0.925	0.925	0.925	0.925
0.1	-0.3	-1.05	2.8	94	0.906	0.906	0.906	0.906
0.2	0.3	-1	0.25	76	0.588	0.588	0.587	0.587
0.2	0.2	-1.05	0.35	78	0.596	0.596	0.596	0.596
0.2	0.1	-1	0.2	84	0.408	0.408	0.408	0.408
0.2	0	-1	0.25	89	0.405	0.405	0.405	0.405
0.2	-0.1	-1	0.2	92	0.423	0.423	0.423	0.423
0.2	-0.2	-1	0.15	95	0.417	0.417	0.417	0.417
0.2	-0.3	-1	0.1	83	0.405	0.405	0.404	0.404

Table A4-3: 4 inspectors, 30 defects and 0.1 degree of difficulty.

4ins/30 def/0.1 dif

(0.1,0.4,0.6,0.9)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.266666667	0.066666667	0	1	1	0.997	0.997
0.025	0.2	-0.166666667		0.1	0	0.997	0.997	0.997
0.025	0.1	-0.066666667		0.1	0	0.995	0.995	0.995
0.025	0	0.066666667	0.133333333	0	0.997	0.997	0.997	0.997
0.025	-0.1		0.2	0.2	0	0.996	0.996	0.996
0.025	-0.2	0.333333333		0.3	0	0.999	0.999	0.999
0.025	-0.3		0.4	0.166666667	0	0.998	0.998	0.998
0.05	0.3		-0.2	0.133333333	0	0.996	0.996	0.994
0.05	0.2	-0.066666667	0.233333333	0	0.999	0.999	0.999	0.999
0.05	0.1		0.1	0.3	0	0.997	0.997	0.997
0.05	0	0.266666667	0.466666667	0	0.998	0.998	0.998	0.998
0.05	-0.1	0.433333333	0.666666667	0	0.994	0.994	0.994	0.994
0.05	-0.2	0.633333333	0.966666667	0	0.999	0.999	0.999	0.999
0.05	-0.3	0.433333333	7.966666667	0	0.997	0.997	0.997	0.997
0.075	0.3	-0.033333333	0.433333333	0	0.997	0.997	0.996	0.996
0.075	0.2	0.166666667	0.733333333	0	0.997	0.997	0.997	0.997
0.075	0.1	0.066666667	4.066666667	0	1	1	1	1
0.075	0		0.2	4.233333333	0	0.997	0.997	0.997
0.075	-0.1	0.333333333	4.691666667	0	0.995	0.995	0.995	0.995
0.075	-0.2		0.5	5.6	0	0.995	0.995	0.995
0.075	-0.3	-0.233333333	7.633333333	0	0.998	0.998	0.998	0.998
0.1	0.3		-0.1	2.716666667	0	0.995	0.995	0.995
0.1	0.2		0	5	0	0.999	0.999	0.999
0.1	0.1		-2.3	4.833333333	0	1	1	1
0.1	0	-2.133333333		5	0	0.999	0.999	0.999
0.1	-0.1	-0.583333333	4.866666667	0	1	1	1	1
0.1	-0.2	-3.966666667		6.1	0	0.997	0.997	0.997

0.1	-0.3	-3.633333333	6.2	0	0.998	0.998	0.998	0.998
0.2	0.3	-1.633333333	1.65	0	0.996	0.996	0.996	0.996
0.2	0.2	-1.7	1.75	0	0.999	0.999	0.997	0.997
0.2	0.1	-1.633333333	1.633333333	0	0.997	0.997	0.995	0.995
0.2	0	-1.633333333	1.633333333	0	0.999	0.999	0.998	0.998
0.2	-0.1	-1.7	1.8	0	0.999	0.999	0.999	0.999
0.2	-0.2	-1.7	1.533333333	0	0.998	0.998	0.998	0.998
0.2	-0.3	-1.7	1.633333333	0	0.998	0.998	0.996	0.996
(0.1,0.1,0.9,0.9)								
0.025	0.3	-0.266666667	0.033333333	0	0.998	0.998	0.997	0.997
0.025	0.2	-0.166666667	0.033333333	0	0.997	0.997	0.997	0.997
0.025	0.1	-0.066666667	0.033333333	0	0.996	0.996	0.996	0.996
0.025	0	0.033333333	0.066666667	0	1	1	1	1
0.025	-0.1	0.166666667	0.1	0	0.998	0.998	0.998	0.998
0.025	-0.2	0.3	0.133333333	0	0.999	0.999	0.999	0.999
0.025	-0.3	0.4	0.133333333	0	0.998	0.998	0.998	0.998
0.05	0.3	-0.233333333	0.133333333	0	0.997	0.997	0.995	0.995
0.05	0.2	-0.1	0.166666667	0	0.996	0.996	0.996	0.996
0.05	0.1	0.066666667	0.266666667	0	0.996	0.996	0.996	0.996
0.05	0	0.233333333	0.4	0	0.996	0.996	0.996	0.996
0.05	-0.1	0.4	0.566666667	0	0.999	0.999	0.999	0.999
0.05	-0.2	0.566666667	0.833333333	0	0.997	0.997	0.997	0.997
0.05	-0.3	0.5	0.633333333	0	0.998	0.998	0.998	0.998
0.075	0.3	-0.1	0.4	0	0.995	0.995	0.995	0.995
0.075	0.2	0.1	0.6	0	0.997	0.997	0.997	0.997
0.075	0.1	0.066666667	0.666666667	0	1	1	1	1
0.075	0	0.233333333	0.833333333	0	0.999	0.999	0.999	0.999
0.075	-0.1	0.483333333	1.4	0	0.998	0.998	0.998	0.998
0.075	-0.2	0.733333333	2.066666667	0	1	1	1	1
0.075	-0.3	0.3	7.65	0	0.999	0.999	0.999	0.999
0.1	0.3	-0.1	0.616666667	0	0.999	0.999	0.999	0.999
0.1	0.2	0.066666667	1	0	0.999	0.999	0.999	0.999
0.1	0.1	-0.1	4.783333333	0	0.998	0.998	0.998	0.998
0.1	0	-0.1	4.7	0	0.997	0.997	0.997	0.997
0.1	-0.1	-0.083333333	5.383333333	0	0.998	0.998	0.998	0.998
0.1	-0.2	-3.633333333	6.333333333	0	0.999	0.999	0.999	0.999
0.1	-0.3	-3.633333333	5.933333333	0	0.998	0.998	0.998	0.998
0.2	0.3	-1.633333333	1.866666667	0	0.998	0.998	0.998	0.998
0.2	0.2	-1.7	1.9	0	0.999	0.999	0.998	0.998
0.2	0.1	-1.7	1.733333333	0	0.998	0.998	0.995	0.995
0.2	0	-1.7	1.866666667	0	0.998	0.998	0.997	0.997
0.2	-0.1	-1.7	1.441666667	0	0.997	0.997	0.996	0.996
0.2	-0.2	-1.8	1.8	0	0.998	0.998	0.997	0.997

	0.2	-0.3	-1.7	1.633333333	0	0.999	0.999	0.998	0.998
(0.5,0.5,0.9,0.9)									
	0.025	0.3	-0.266666667	0.033333333	0	0.998	0.998	0.97	0.97
	0.025	0.2	-0.166666667	0.033333333	0	0.999	0.999	0.995	0.995
	0.025	0.1	-0.066666667	0.066666667	0	1	1	1	1
	0.025	0	0.033333333	0.066666667	0	1	1	1	1
	0.025	-0.1	0.166666667	0.1	0	1	1	1	1
	0.025	-0.2	0.266666667	0.133333333	0	1	1	1	1
	0.025	-0.3	0.366666667	0.166666667	0	0.999	0.999	0.999	0.999
	0.05	0.3	-0.233333333	0.133333333	0	1	1	0.979	0.979
	0.05	0.2	-0.1	0.2	0	1	1	0.997	0.997
	0.05	0.1	0.033333333	0.266666667	0	1	1	1	1
	0.05	0	0.166666667	0.4	0	1	1	1	1
	0.05	-0.1	0.333333333	0.566666667	0	1	1	1	1
	0.05	-0.2	0.5	0.866666667	0	1	1	0.999	0.998
	0.05	-0.3	0.5	0.733333333	0	1	1	1	1
	0.075	0.3	-0.1	0.4	0	0.999	0.999	0.992	0.992
	0.075	0.2	0.066666667	0.666666667	0	1	1	1	0.999
	0.075	0.1	0.133333333	0.633333333	0	1	1	1	1
	0.075	0	0.266666667	0.933333333	0	1	1	1	1
	0.075	-0.1	0.4	1.266666667	0	1	1	1	1
	0.075	-0.2	0.566666667	2.133333333	0	1	1	1	1
	0.075	-0.3	0.433333333	7.8	0	1	1	1	1
	0.1	0.3	-0.066666667	0.7	0	1	1	0.994	0.994
	0.1	0.2	0.133333333	1.133333333	0	1	1	1	1
	0.1	0.1	0.033333333	4.7	0	0.999	0.999	0.999	0.999
	0.1	0	0.2	4.633333333	0	1	1	1	1
	0.1	-0.1	0.216666667	5.1	0	1	1	1	1
	0.1	-0.2	-0.233333333	7.033333333	0	1	1	1	1
	0.1	-0.3	-0.266666667	7.133333333	0	1	1	0.999	0.998
	0.2	0.3	-1.366666667	2.733333333	0	1	1	0.994	0.994
	0.2	0.2	-1.7	2.8	0	0.999	0.999	0.989	0.989
	0.2	0.1	-1.466666667	2.766666667	0	1	1	0.992	0.992
	0.2	0	-1.633333333	2.733333333	0	0.999	0.999	0.991	0.991
	0.2	-0.1	-1.633333333	2.733333333	0	0.999	0.999	0.991	0.991
	0.2	-0.2	-1.633333333	2.8	0	1	1	0.988	0.988
	0.2	-0.3	-1.633333333	2.808333333	0	0.997	0.997	0.993	0.993
(0.9,0.9,0.9,0.9)									
	0.025	0.3	-0.283333333	0.033333333	0	0.986	0.986	0.853	0.851
	0.025	0.2	-0.166666667	0.033333333	0	0.999	0.999	0.96	0.959
	0.025	0.1	-0.066666667	0.033333333	0	1	1	0.992	0.992
	0.025	0	0.033333333	0.066666667	0	1	1	1	1
	0.025	-0.1	0.133333333	0.1	0	1	1	1	1

0.025	-0.2	0.233333333	0.1	0	1	1	1	1
0.025	-0.3	0.366666667	0.133333333	0	1	1	1	1
0.05	0.3	-0.233333333	0.066666667	0	0.993	0.993	0.911	0.909
0.05	0.2	-0.1	0.133333333	0	1	1	0.983	0.981
0.05	0.1	0	0.2	0	1	1	0.996	0.993
0.05	0	0.133333333	0.275	0	1	1	0.999	0.997
0.05	-0.1	0.266666667	0.366666667	0	1	1	1	1
0.05	-0.2	0.4	0.466666667	0	1	1	0.999	0.998
0.05	-0.3	0.466666667	0.533333333	0	1	1	0.999	0.998
0.075	0.3	-0.133333333	0.233333333	0	0.999	0.999	0.951	0.95
0.075	0.2	0	0.366666667	0	0.999	0.999	0.992	0.99
0.075	0.1	0.133333333	0.566666667	0	1	1	0.997	0.996
0.075	0	0.266666667	0.6	0	1	1	0.999	0.999
0.075	-0.1	0.4	1.133333333	0	1	1	0.999	0.998
0.075	-0.2	0.6	1.358333333	0	1	1	0.997	0.994
0.075	-0.3	0.633333333	0.9	0	1	1	0.998	0.996
0.1	0.3	0	0.5	0	1	1	0.977	0.977
0.1	0.2	0.133333333	0.866666667	0	1	1	0.992	0.992
0.1	0.1	0.2	0.7	0	1	1	0.997	0.997
0.1	0	0.366666667	0.9	0	1	1	0.998	0.996
0.1	-0.1	0.5	1.1	0	1	1	0.996	0.993
0.1	-0.2	0.2	5.5	0	1	1	1	1
0.1	-0.3	0.266666667	6.533333333	0	1	1	0.998	0.997
0.2	0.3	-0.233333333	3.216666667	0	0.998	0.998	0.968	0.966
0.2	0.2	-0.233333333	3.533333333	0	0.997	0.997	0.983	0.982
0.2	0.1	-0.25	3.2	0	0.999	0.999	0.967	0.966
0.2	0	-0.233333333	3.533333333	0	0.994	0.994	0.975	0.974
0.2	-0.1	-0.233333333	3.266666667	0	0.995	0.995	0.966	0.966
0.2	-0.2	-0.166666667	3.266666667	0	0.998	0.998	0.957	0.953
0.2	-0.3	-0.233333333	3.366666667	0	1	1	0.971	0.97

(0.1,0.1,0.1,0.1)

0.025	0.3	-0.033333333	0.966666667	0	0.685	0.685	0.685	0.685
0.025	0.2	0.266666667	1.266666667	0	0.705	0.705	0.705	0.705
0.025	0.1	0.7	1.7	0	0.707	0.707	0.707	0.707
0.025	0	1.4	2.4	0	0.681	0.681	0.681	0.681
0.025	-0.1	2.8	3.8	0	0.701	0.701	0.701	0.701
0.025	-0.2	6.966666667	7.966666667	0	0.716	0.716	0.716	0.716
0.025	-0.3	-1878.1	1877.1	0	0.691	0.691	0.691	0.691
0.05	0.3	-6.633333333	5.633333333	0	0.687	0.687	0.687	0.687
0.05	0.2	-6.633333333	5.633333333	0	0.695	0.695	0.695	0.695
0.05	0.1	-6.633333333	5.633333333	0	0.684	0.684	0.684	0.684
0.05	0	-6.633333333	5.633333333	0	0.709	0.709	0.709	0.709
0.05	-0.1	-6.633333333	5.633333333	0	0.688	0.688	0.688	0.688

0.05	-0.2	-6.633333333	5.633333333	0	0.697	0.697	0.697	0.697
0.05	-0.3	-6.633333333	5.966666667	0	0.698	0.698	0.698	0.698
0.075	0.3	-3.266666667	2.266666667	0	0.699	0.699	0.699	0.699
0.075	0.2	-3.266666667	2.266666667	0	0.676	0.676	0.676	0.676
0.075	0.1	-3.266666667	2.5	0	0.681	0.681	0.681	0.681
0.075	0	-3.266666667	2.5	0	0.695	0.695	0.695	0.695
0.075	-0.1	-3.266666667	2.5	0	0.7	0.7	0.7	0.7
0.075	-0.2	-3.266666667	2.5	0	0.701	0.701	0.701	0.701
0.075	-0.3	-3.266666667	2.5	0	0.672	0.672	0.672	0.672
0.1	0.3	-2.133333333	1.3	0	0.706	0.706	0.706	0.706
0.1	0.2	-2.133333333	1.3	0	0.718	0.718	0.718	0.718
0.1	0.1	-2.133333333	1.3	0	0.712	0.712	0.712	0.712
0.1	0	-2.133333333	1.3	0	0.708	0.708	0.708	0.708
0.1	-0.1	-2.133333333	1.3	0	0.722	0.722	0.722	0.722
0.1	-0.2	-2.133333333	1.3	0	0.685	0.685	0.685	0.685
0.1	-0.3	-2.133333333	1.3	0	0.719	0.719	0.719	0.719
0.2	0.3	-1.133333333	0.2	0	0.711	0.711	0.711	0.711
0.2	0.2	-1.133333333	0.2	0	0.71	0.71	0.71	0.71
0.2	0.1	-1.133333333	0.2	0	0.689	0.689	0.689	0.689
0.2	0	-1.133333333	0.2	0	0.702	0.702	0.702	0.702
0.2	-0.1	-1.133333333	0.2	0	0.711	0.711	0.711	0.711
0.2	-0.2	-1.133333333	0.2	0	0.704	0.704	0.704	0.704
0.2	-0.3	-1.133333333	0.2	0	0.691	0.691	0.691	0.691
(0.5,0.5,0.5,0.5)								
0.025	0.3	-0.266666667	0.033333333	0	0.997	0.997	0.993	0.993
0.025	0.2	-0.166666667	0.066666667	0	0.997	0.997	0.997	0.997
0.025	0.1	-0.033333333	0.1	0	0.997	0.997	0.997	0.997
0.025	0	0.1	0.166666667	0	1	1	1	1
0.025	-0.1	0.233333333	0.233333333	0	0.996	0.996	0.996	0.996
0.025	-0.2	0.366666667	0.333333333	0	0.999	0.999	0.999	0.999
0.025	-0.3	0.466666667	0.4	0	0.999	0.999	0.999	0.999
0.05	0.3	-0.166666667	0.3	0	0.995	0.995	0.992	0.992
0.05	0.2	0	0.466666667	0	1	1	1	1
0.05	0.1	0.166666667	0.866666667	0	0.994	0.994	0.994	0.994
0.05	0	0.433333333	1.6	0	1	1	1	1
0.05	-0.1	0.5	3.366666667	0	0.998	0.998	0.998	0.998
0.05	-0.2	0.966666667	10.73333333	0	0.998	0.998	0.998	0.998
0.05	-0.3	0.4	25.1	0	0.995	0.995	0.995	0.995
0.075	0.3	0.1	2	0	0.998	0.998	0.997	0.997
0.075	0.2	0.5	16.4	0	0.997	0.997	0.997	0.997
0.075	0.1	0.033333333	6.966666667	0	0.999	0.999	0.999	0.999
0.075	0	0.133333333	7.033333333	0	0.996	0.996	0.996	0.996
0.075	-0.1	0.233333333	7.733333333	0	0.998	0.998	0.998	0.998

0.075	-0.2	0.266666667	8.7	0	0.997	0.997	0.997	0.997
0.075	-0.3	-4.75	7.8	0	0.997	0.997	0.997	0.997
0.1	0.3	-0.166666667	4.033333333	0	1	1	1	1
0.1	0.2	-0.1	4.7	0	1	1	1	1
0.1	0.1	-3.633333333	5.066666667	0	0.996	0.996	0.996	0.996
0.1	0	-3.633333333	5.166666667	0	0.999	0.999	0.999	0.999
0.1	-0.1	-3.633333333	5.166666667	0	0.998	0.998	0.998	0.998
0.1	-0.2	-3.966666667	5.425	0	0.998	0.998	0.998	0.998
0.1	-0.3	-3.966666667	5.8	0	0.998	0.998	0.998	0.998
0.2	0.3	-1.633333333	1.541666667	0	1	1	0.999	0.999
0.2	0.2	-1.7	1.633333333	0	0.999	0.999	0.997	0.997
0.2	0.1	-1.633333333	1.633333333	0	0.997	0.997	0.996	0.996
0.2	0	-1.7	1.533333333	0	0.997	0.997	0.995	0.995
0.2	-0.1	-1.633333333	1.633333333	0	0.998	0.998	0.994	0.994
0.2	-0.2	-1.7	1.508333333	0	0.999	0.999	0.996	0.996
0.2	-0.3	-1.8	1.066666667	0	0.997	0.997	0.994	0.994
(0.1,0.9,0.9,0.9)								
0.025	0.3	-0.266666667	0.033333333	0	0.998	0.998	0.952	0.952
0.025	0.2	-0.166666667	0.033333333	0	1	1	0.995	0.995
0.025	0.1	-0.066666667	0.066666667	0	1	1	1	1
0.025	0	0.033333333	0.066666667	0	1	1	1	1
0.025	-0.1	0.133333333	0.1	0	1	1	1	1
0.025	-0.2	0.266666667	0.1	0	1	1	1	1
0.025	-0.3	0.366666667	0.133333333	0	1	1	1	1
0.05	0.3	-0.233333333	0.1	0	0.999	0.999	0.984	0.983
0.05	0.2	-0.1	0.166666667	0	1	1	0.994	0.994
0.05	0.1	0.033333333	0.233333333	0	0.999	0.999	0.999	0.999
0.05	0	0.166666667	0.333333333	0	1	1	1	1
0.05	-0.1	0.3	0.5	0	1	1	1	1
0.05	-0.2	0.4	0.55	0	1	1	1	1
0.05	-0.3	0.466666667	0.608333333	0	1	1	1	1
0.075	0.3	-0.133333333	0.3	0	1	1	0.99	0.99
0.075	0.2	0.033333333	0.433333333	0	0.999	0.999	0.999	0.999
0.075	0.1	0.1	0.566666667	0	0.999	0.999	0.999	0.999
0.075	0	0.266666667	0.8	0	1	1	1	1
0.075	-0.1	0.4	1.2	0	1	1	1	1
0.075	-0.2	0.566666667	1.808333333	0	0.999	0.999	0.999	0.999
0.075	-0.3	0.533333333	4.8	0	1	1	1	1
0.1	0.3	-0.066666667	0.566666667	0	1	1	0.999	0.999
0.1	0.2	0.1	1.066666667	0	0.999	0.999	0.998	0.998
0.1	0.1	0.1	4.533333333	0	1	1	1	1
0.1	0	0.216666667	4.833333333	0	1	1	1	1
0.1	-0.1	0.333333333	5.233333333	0	1	1	1	1

0.1	-0.2	0	6.6	0	1	1	1	1
0.1	-0.3	-0.166666667	7.233333333	0	1	1	0.999	0.998
0.2	0.3	-0.65	2.641666667	0	0.999	0.999	0.989	0.989
0.2	0.2	-1.466666667	2.8	0	0.999	0.999	0.997	0.997
0.2	0.1	-1.633333333	2.866666667	0	0.996	0.996	0.994	0.994
0.2	0	-1.633333333	2.733333333	0	1	1	0.994	0.994
0.2	-0.1	-1.633333333	2.733333333	0	1	1	0.994	0.994
0.2	-0.2	-1.633333333	2.733333333	0	0.999	0.999	0.991	0.991
0.2	-0.3	-1.8	2.7	0	0.998	0.998	0.993	0.993
(0.5,0.5,0.5,0.9)								
0.025	0.3	-0.266666667	0.033333333	0	0.999	0.999	0.988	0.988
0.025	0.2	-0.166666667	0.066666667	0	0.999	0.999	0.998	0.998
0.025	0.1	-0.066666667	0.066666667	0	0.999	0.999	0.999	0.999
0.025	0	0.066666667	0.066666667	0	0.999	0.999	0.999	0.999
0.025	-0.1	0.166666667	0.1	0	1	1	1	1
0.025	-0.2	0.3	0.133333333	0	1	1	1	1
0.025	-0.3	0.4	0.166666667	0	0.999	0.999	0.999	0.999
0.05	0.3	-0.2	0.166666667	0	1	1	0.993	0.993
0.05	0.2	-0.1	0.233333333	0	1	1	0.999	0.999
0.05	0.1	0.1	0.333333333	0	1	1	1	1
0.05	0	0.233333333	0.433333333	0	1	1	1	1
0.05	-0.1	0.433333333	0.633333333	0	0.999	0.999	0.999	0.999
0.05	-0.2	0.666666667	0.9	0	0.998	0.998	0.998	0.998
0.05	-0.3	0.466666667	1	0	1	1	1	1
0.075	0.3	-0.066666667	0.4	0	1	1	0.999	0.999
0.075	0.2	0.166666667	0.7	0	0.999	0.999	0.999	0.999
0.075	0.1	0.1	0.733333333	0	1	1	1	1
0.075	0	0.2	1.166666667	0	1	1	1	1
0.075	-0.1	0.366666667	1.666666667	0	1	1	1	1
0.075	-0.2	0.5	2.133333333	0	0.999	0.999	0.999	0.999
0.075	-0.3	0.033333333	8.5	0	1	1	1	1
0.1	0.3	-0.1	0.766666667	0	0.999	0.999	0.999	0.999
0.1	0.2	0.1	1.366666667	0	0.999	0.999	0.999	0.999
0.1	0.1	-0.266666667	4.933333333	0	0.999	0.999	0.999	0.999
0.1	0	-0.233333333	5.1	0	1	1	1	1
0.1	-0.1	-0.166666667	5.2	0	0.999	0.999	0.999	0.999
0.1	-0.2	-3.966666667	6.333333333	0	0.998	0.998	0.998	0.998
0.1	-0.3	-3.633333333	6.466666667	0	0.999	0.999	0.999	0.999
0.2	0.3	-1.7	2.3	0	1	1	0.994	0.994
0.2	0.2	-1.7	2.3	0	0.999	0.999	0.994	0.994
0.2	0.1	-1.633333333	2.3	0	1	1	0.993	0.993
0.2	0	-1.8	2.233333333	0	0.999	0.999	0.995	0.995
0.2	-0.1	-1.8	2.233333333	0	0.999	0.999	0.996	0.996

	0.2	-0.2	-1.8	2.3	0	0.998	0.998	0.994	0.994
	0.2	-0.3	-1.8	2.141666667	0	0.999	0.999	0.998	0.998
(0.1,0.5,0.5,0.5)									
	0.025	0.3	-0.266666667	0.033333333	0	0.994	0.994	0.993	0.993
	0.025	0.2	-0.133333333	0.066666667	0	0.994	0.994	0.994	0.994
	0.025	0.1	-0.033333333	0.1	0	0.992	0.992	0.992	0.992
	0.025	0	0.1	0.133333333	0	0.997	0.997	0.997	0.997
	0.025	-0.1	0.233333333	0.2	0	0.994	0.994	0.994	0.994
	0.025	-0.2	0.366666667	0.3	0	0.993	0.993	0.993	0.993
	0.025	-0.3	0.466666667	0.4	0	0.992	0.992	0.992	0.992
	0.05	0.3	-0.166666667	0.3	0	0.998	0.998	0.998	0.998
	0.05	0.2	0	0.5	0	0.992	0.992	0.992	0.992
	0.05	0.1	0.183333333	0.9	0	0.992	0.992	0.992	0.992
	0.05	0	0.4	1.666666667	0	0.99	0.99	0.99	0.99
	0.05	-0.1	0.666666667	3.366666667	0	0.993	0.993	0.993	0.993
	0.05	-0.2	1.033333333	10.8	0	0.994	0.994	0.994	0.994
	0.05	-0.3	-0.033333333	24.96666667	0	0.993	0.993	0.993	0.993
	0.075	0.3	0.066666667	1.9	0	0.992	0.992	0.992	0.992
	0.075	0.2	0.5	16.46666667	0	0.989	0.989	0.989	0.989
	0.075	0.1	-0.366666667	6.433333333	0	0.997	0.997	0.997	0.997
	0.075	0	-0.2	6.8	0	0.993	0.993	0.993	0.993
	0.075	-0.1	-0.316666667	7.5	0	0.993	0.993	0.993	0.993
	0.075	-0.2	-1	7.933333333	0	0.992	0.992	0.992	0.992
	0.075	-0.3	-6	7.3	0	0.992	0.992	0.992	0.992
	0.1	0.3	-0.3	3.9	0	0.995	0.995	0.995	0.995
	0.1	0.2	-0.25	4.5	0	0.992	0.992	0.992	0.992
	0.1	0.1	-3.633333333	4	0	0.993	0.993	0.993	0.993
	0.1	0	-3.3	4.2	0	0.994	0.994	0.994	0.994
	0.1	-0.1	-3.633333333	4.466666667	0	0.995	0.995	0.995	0.995
	0.1	-0.2	-3.966666667	2.833333333	0	0.996	0.996	0.996	0.996
	0.1	-0.3	-3.966666667	3.166666667	0	0.994	0.994	0.994	0.994
	0.2	0.3	-1.633333333	0.833333333	0	0.99	0.99	0.988	0.988
	0.2	0.2	-1.633333333	0.833333333	0	0.998	0.998	0.998	0.998
	0.2	0.1	-1.633333333	0.766666667	0	0.995	0.995	0.995	0.995
	0.2	0	-1.633333333	0.766666667	0	0.994	0.994	0.994	0.994
	0.2	-0.1	-1.633333333	0.766666667	0	0.992	0.992	0.99	0.99
	0.2	-0.2	-1.633333333	0.766666667	0	0.995	0.995	0.994	0.994
	0.2	-0.3	-1.633333333	0.766666667	0	0.997	0.997	0.997	0.997
(0.1,0.1,0.1,0.9)									
	0.025	0.3	-0.266666667	0.066666667	0	0.983	0.983	0.983	0.983
	0.025	0.2	-0.166666667	0.066666667	0	0.983	0.983	0.983	0.983
	0.025	0.1	-0.033333333	0.1	0	0.971	0.971	0.971	0.971
	0.025	0	0.066666667	0.166666667	0	0.971	0.971	0.971	0.971

0.025	-0.1	0.2	0.233333333	0	0.983	0.983	0.983	0.983
0.025	-0.2	0.333333333	0.266666667	0	0.987	0.987	0.987	0.987
0.025	-0.3	0.4	0.166666667	0	0.978	0.978	0.978	0.978
0.05	0.3	-0.233333333	0.133333333	0	0.976	0.976	0.976	0.976
0.05	0.2	-0.033333333	0.466666667	0	0.971	0.971	0.971	0.971
0.05	0.1	0.066666667	0.833333333	0	0.978	0.978	0.978	0.978
0.05	0	0.2	1.566666667	0	0.971	0.971	0.971	0.971
0.05	-0.1	0.366666667	0.633333333	0	0.972	0.972	0.972	0.972
0.05	-0.2	0.6	10.23333333	0	0.968	0.968	0.968	0.968
0.05	-0.3	0.3	23.6	0	0.973	0.973	0.973	0.973
0.075	0.3	-0.066666667	1.7	0	0.978	0.978	0.978	0.978
0.075	0.2	0.066666667	0.7	0	0.969	0.969	0.969	0.969
0.075	0.1	-0.083333333	5.883333333	0	0.976	0.976	0.976	0.976
0.075	0	0.016666667	6.2	0	0.967	0.967	0.967	0.967
0.075	-0.1	0.1	5.375	0	0.975	0.975	0.975	0.975
0.075	-0.2	-1	7.2	0	0.982	0.982	0.982	0.982
0.075	-0.3	-3.5	6.508333333	0	0.976	0.976	0.976	0.976
0.1	0.3	-0.233333333	2.566666667	0	0.977	0.977	0.977	0.977
0.1	0.2	-0.2	2.966666667	0	0.971	0.971	0.971	0.971
0.1	0.1	-2.3	4	0	0.975	0.975	0.975	0.975
0.1	0	-2.3	4.366666667	0	0.98	0.98	0.98	0.98
0.1	-0.1	-2.3	4.225	0	0.971	0.971	0.971	0.971
0.1	-0.2	-3.3	2.833333333	0	0.977	0.977	0.977	0.977
0.1	-0.3	-3.633333333	2.833333333	0	0.97	0.97	0.97	0.97
0.2	0.3	-1.466666667	0.5	0	0.974	0.974	0.974	0.974
0.2	0.2	-1.466666667	0.5	0	0.984	0.984	0.984	0.984
0.2	0.1	-1.466666667	0.5	0	0.982	0.982	0.982	0.982
0.2	0	-1.466666667	0.4	0	0.984	0.984	0.984	0.984
0.2	-0.1	-1.466666667	0.5	0	0.976	0.976	0.975	0.975
0.2	-0.2	-1.466666667	0.5	0	0.972	0.972	0.972	0.972
0.2	-0.3	-1.466666667	0.525	0	0.977	0.977	0.977	0.977

Table A4-4: 4 inspectors, 10 defects and 0.4 degree of difficulty.

4 ins/10 def/0.4 dif

(0.1,0.4,0.6,0.9)

SD	RE	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.3	0	5	0.532	0.131	0.689	0.021
0.025	0.2	-0.2	0	0	0.745	0.364	0.786	0.151
0.025	0.1	-0.1	0	0	0.999	0.608	0.999	0.352
0.025	0	0	0	0	1	0.609	1	0.354
0.025	-0.1	0.1	0	0	0.778	0.405	0.736	0.099
0.025	-0.2	0.2	0	0	0.653	0.256	0.763	0.129

0.025	-0.3	0.3	0	0	0.607	0.203	0.533	-0.114
0.05	0.3	-0.3	0	3	0.543	0.141	0.703	0.044
0.05	0.2	-0.2	0	1	0.76	0.383	0.79	0.157
0.05	0.1	-0.1	0	0	1	0.624	1	0.37
0.05	0	0	0	0	0.982	0.569	0.973	0.321
0.05	-0.1	0.1	0	0	0.778	0.399	0.736	0.093
0.05	-0.2	0.2	0.1	0	0.633	0.213	0.705	0.041
0.05	-0.3	0.3	0.1	1	0.613	0.223	0.519	-0.148
0.075	0.3	-0.3	0.1	12	0.585	0.2	0.73	0.084
0.075	0.2	-0.2	0.1	3	0.817	0.434	0.863	0.212
0.075	0.1	-0.1	0.1	0	0.993	0.576	0.986	0.309
0.075	0	0	0.1	0	0.918	0.524	0.907	0.249
0.075	-0.1	0.1	0.1	1	0.725	0.326	0.754	0.1
0.075	-0.2	0.2	0.1	0	0.668	0.307	0.647	0.019
0.075	-0.3	0.3	0.1	0	0.582	0.16	0.518	-0.152
0.1	0.3	-0.2	0.1	9	0.641	0.271	0.736	0.119
0.1	0.2	-0.1	0.1	1	0.85	0.427	0.894	0.219
0.1	0.1	0	0.1	0	0.925	0.552	0.932	0.301
0.1	0	0.1	0.2	0	0.851	0.487	0.85	0.246
0.1	-0.1	0.2	0.2	0	0.707	0.32	0.718	0.067
0.1	-0.2	0.3	0.2	0	0.637	0.252	0.625	-0.014
0.1	-0.3	0.4	0.3	0	0.601	0.196	0.533	-0.117
0.2	0.3	0	0.4	8	0.685	0.298	0.722	0.092
0.2	0.2	0	0.5	0	0.711	0.298	0.665	0.011
0.2	0.1	0.1	0.525	0	0.695	0.292	0.671	0.027
0.2	0	0.2	0.7	0	0.671	0.267	0.585	-0.086
0.2	-0.1	0.3	0.9	0	0.661	0.26	0.543	-0.118
0.2	-0.2	0.3	0.7	0	0.613	0.19	0.518	-0.164
0.2	-0.3	0.4	1.1	0	0.621	0.213	0.494	-0.16

(0.1,0.1,0.9,0.9)

0.025	0.3	-0.3	0	13	0.569	0.113	0.72	0.031
0.025	0.2	-0.2	0	1	0.76	0.328	0.816	0.145
0.025	0.1	-0.1	0	0	1	0.551	1	0.296
0.025	0	0	0	0	1	0.556	1	0.302
0.025	-0.1	0.1	0	0	0.762	0.32	0.751	0.06
0.025	-0.2	0.2	0	0	0.612	0.154	0.777	0.096
0.025	-0.3	0.3	0	0	0.539	0.064	0.505	-0.213
0.05	0.3	-0.3	0	7	0.594	0.133	0.741	0.036
0.05	0.2	-0.2	0	1	0.772	0.313	0.821	0.133
0.05	0.1	-0.1	0	0	1	0.556	1	0.311
0.05	0	0	0	0	0.991	0.546	0.977	0.284
0.05	-0.1	0.1	0	0	0.76	0.329	0.745	0.058
0.05	-0.2	0.2	0	0	0.621	0.187	0.733	0.056

0.05	-0.3	0.3	0	0	0.59	0.166	0.517	-0.175
0.075	0.3	-0.3	0.1	19	0.586	0.127	0.738	0.03
0.075	0.2	-0.2	0.1	2	0.792	0.398	0.841	0.17
0.075	0.1	-0.1	0.1	0	0.993	0.57	0.995	0.304
0.075	0	0	0.1	1	0.935	0.517	0.935	0.264
0.075	-0.1	0.1	0.1	0	0.717	0.285	0.779	0.117
0.075	-0.2	0.2	0.1	0	0.565	0.091	0.668	-0.043
0.075	-0.3	0.3	0.1	0	0.566	0.117	0.538	-0.156
0.1	0.3	-0.2	0.1	12	0.675	0.2	0.772	0.073
0.1	0.2	-0.2	0.1	1	0.853	0.445	0.866	0.208
0.1	0.1	0	0.1	1	0.958	0.513	0.955	0.259
0.1	0	0.1	0.1	1	0.862	0.418	0.891	0.209
0.1	-0.1	0.2	0.1	1	0.703	0.269	0.748	0.058
0.1	-0.2	0.3	0.2	0	0.616	0.183	0.654	-0.032
0.1	-0.3	0.4	0.2	1	0.582	0.151	0.537	-0.146
0.2	0.3	-0.05	0.4	12	0.659	0.209	0.735	0.03
0.2	0.2	0	0.5	4	0.716	0.272	0.7	0.029
0.2	0.1	0.1	0.5	0	0.672	0.243	0.708	0.006
0.2	0	0.2	0.6	0	0.687	0.239	0.627	-0.065
0.2	-0.1	0.3	0.7	0	0.639	0.177	0.564	-0.159
0.2	-0.2	0.3	0.7	0	0.614	0.172	0.552	-0.132
0.2	-0.3	0.4	0.8	0	0.608	0.16	0.526	-0.159

(0.5,0.5,0.9,0.9)

0.025	0.3	-0.3	0	1	0.746	0.018	0.901	0.003
0.025	0.2	-0.2	0	0	0.833	0.094	0.931	0.027
0.025	0.1	-0.1	0	0	1	0.238	1	0.098
0.025	0	0	0	0	1	0.256	1	0.118
0.025	-0.1	0.1	0	0	0.75	0.018	0.836	-0.06
0.025	-0.2	0.2	0	0	0.482	-0.256	0.829	-0.08
0.025	-0.3	0.3	0	0	0.309	-0.42	0.592	-0.306
0.05	0.3	-0.3	0	4	0.75	0.02	0.894	0
0.05	0.2	-0.2	0	0	0.866	0.097	0.944	0.028
0.05	0.1	-0.1	0	0	1	0.261	0.999	0.092
0.05	0	0	0	0	0.978	0.22	0.989	0.076
0.05	-0.1	0.1	0	0	0.725	-0.03	0.861	-0.044
0.05	-0.2	0.2	0	0	0.45	-0.29	0.794	-0.111
0.05	-0.3	0.3	0	0	0.307	-0.444	0.61	-0.304
0.075	0.3	-0.3	0.1	0	0.753	0.029	0.906	0.005
0.075	0.2	-0.2	0.1	0	0.855	0.128	0.945	0.04
0.075	0.1	-0.1	0.1	0	0.986	0.231	0.983	0.087
0.075	0	0	0.1	0	0.912	0.182	0.958	0.068
0.075	-0.1	0.1	0.1	0	0.692	-0.044	0.852	-0.06
0.075	-0.2	0.2	0.1	0	0.438	-0.317	0.758	-0.164

0.075	-0.3	0.3	0.2	0	0.318	-0.432	0.642	-0.263
0.1	0.3	-0.2	0.1	2	0.78	0.038	0.915	0.007
0.1	0.2	-0.1	0.1	1	0.878	0.135	0.939	0.036
0.1	0.1	0	0.1	0	0.924	0.147	0.952	0.033
0.1	0	0	0.1	0	0.825	0.064	0.914	-0.001
0.1	-0.1	0.1	0.2	0	0.633	-0.131	0.877	-0.022
0.1	-0.2	0.2	0.2	0	0.479	-0.251	0.737	-0.167
0.1	-0.3	0.3	0.2	0	0.388	-0.346	0.642	-0.249
0.2	0.3	0	0.4	4	0.689	-0.037	0.83	-0.067
0.2	0.2	0	0.3	1	0.677	-0.087	0.783	-0.13
0.2	0.1	0	0.4	0	0.665	-0.066	0.772	-0.127
0.2	0	0.1	0.4	0	0.591	-0.15	0.686	-0.223
0.2	-0.1	0.2	0.525	0	0.525	-0.219	0.626	-0.279
0.2	-0.2	0.2	0.6	0	0.463	-0.3	0.583	-0.323
0.2	-0.3	0.2	0.6	0	0.486	-0.263	0.599	-0.319
(0.9,0.9,0.9,0.9)								
0.025	0.3	-0.3	0	0	0.923	-0.013	0.969	-0.011
0.025	0.2	-0.2	0	0	0.949	0.013	0.985	0
0.025	0.1	-0.1	0	0	1	0.073	1	0.012
0.025	0	0	0	0	1	0.073	1	0.014
0.025	-0.1	0.1	0	0	0.84	-0.079	0.941	-0.037
0.025	-0.2	0.2	0	0	0.542	-0.395	0.953	-0.031
0.025	-0.3	0.3	0	0	0.227	-0.7	0.79	-0.196
0.05	0.3	-0.3	0	0	0.891	-0.018	0.973	-0.01
0.05	0.2	-0.2	0	0	0.942	0.02	0.985	0.003
0.05	0.1	-0.1	0	0	1	0.083	1	0.02
0.05	0	0	0	0	0.99	0.062	0.996	0.011
0.05	-0.1	0.1	0	0	0.833	-0.102	0.961	-0.025
0.05	-0.2	0.2	0	0	0.515	-0.419	0.932	-0.055
0.05	-0.3	0.3	0	0	0.258	-0.68	0.843	-0.142
0.075	0.3	-0.2	0.1	1	0.901	-0.018	0.969	-0.013
0.075	0.2	-0.1	0.1	0	0.959	0.021	0.984	0
0.075	0.1	-0.1	0.1	0	0.985	0.055	0.997	0.01
0.075	0	0	0.1	0	0.966	0.033	0.99	-0.004
0.075	-0.1	0.1	0.1	0	0.807	-0.133	0.975	-0.006
0.075	-0.2	0.2	0.1	0	0.562	-0.355	0.915	-0.067
0.075	-0.3	0.3	0.1	0	0.348	-0.59	0.863	-0.129
0.1	0.3	-0.2	0.1	0	0.912	-0.017	0.973	-0.014
0.1	0.2	-0.1	0.1	0	0.95	0.022	0.985	0.004
0.1	0.1	0	0.1	0	0.955	0.033	0.989	0.003
0.1	0	0	0.1	0	0.911	-0.022	0.98	-0.006
0.1	-0.1	0.1	0.2	0	0.773	-0.152	0.953	-0.034
0.1	-0.2	0.2	0.2	0	0.602	-0.339	0.92	-0.065

0.1	-0.3	0.2	0.1	0	0.432	-0.497	0.863	-0.116
0.2	0.3	0	0.2	2	0.794	-0.12	0.927	-0.056
0.2	0.2	0	0.3	0	0.794	-0.131	0.906	-0.073
0.2	0.1	0	0.3	0	0.782	-0.141	0.903	-0.078
0.2	0	0.1	0.3	0	0.731	-0.211	0.879	-0.107
0.2	-0.1	0.1	0.3	0	0.639	-0.29	0.838	-0.146
0.2	-0.2	0.1	0.4	0	0.595	-0.323	0.8	-0.183
0.2	-0.3	0.2	0.4	0	0.577	-0.347	0.805	-0.179
(0.1,0.1,0.1,0.1)								
0.025	0.3	-0.3	0	197	0.792	0.792	0.75	0.749
0.025	0.2	-0.2	0	173	0.826	0.826	0.822	0.821
0.025	0.1	-0.1	0.1	207	0.793	0.793	0.793	0.791
0.025	0	0.1	0.1	218	0.782	0.782	0.782	0.782
0.025	-0.1	0.2	0.1	233	0.767	0.767	0.767	0.767
0.025	-0.2	0.3	0.1	190	0.81	0.81	0.809	0.808
0.025	-0.3	0.5	0.2	189	0.811	0.811	0.811	0.811
0.05	0.3	-0.2	0.1	211	0.775	0.775	0.747	0.742
0.05	0.2	0	0.2	180	0.82	0.82	0.819	0.818
0.05	0.1	0.1	0.2	190	0.81	0.81	0.81	0.808
0.05	0	0.4	0.3	203	0.797	0.797	0.796	0.794
0.05	-0.1	0.6	0.5	202	0.798	0.798	0.797	0.796
0.05	-0.2	1	0.7	190	0.81	0.81	0.81	0.81
0.05	-0.3	1.4	1	190	0.81	0.81	0.809	0.808
0.075	0.3	0	0.3	181	0.816	0.815	0.792	0.79
0.075	0.2	0.3	0.5	186	0.814	0.814	0.812	0.812
0.075	0.1	0.9	0.9	212	0.788	0.788	0.786	0.783
0.075	0	1.8	1.8	198	0.802	0.802	0.801	0.799
0.075	-0.1	4.2	4.2	216	0.784	0.784	0.784	0.784
0.075	-0.2	22.9	24.4	194	0.806	0.806	0.806	0.806
0.075	-0.3	-10.9	12.3	218	0.782	0.782	0.781	0.78
0.1	0.3	0.7	1	209	0.791	0.791	0.776	0.775
0.1	0.2	2.7	3.1	192	0.808	0.808	0.807	0.804
0.1	0.1	-58.3	65.6	224	0.776	0.776	0.775	0.774
0.1	0	-4.4	5	186	0.814	0.814	0.811	0.808
0.1	-0.1	-2.7	3.2	216	0.784	0.784	0.784	0.784
0.1	-0.2	-2.2	2.7	211	0.789	0.789	0.788	0.787
0.1	-0.3	-1.9	2.5	197	0.803	0.803	0.803	0.803
0.2	0.3	-1.1	1.1	196	0.804	0.804	0.802	0.8
0.2	0.2	-1	0.1	186	0.493	0.493	0.493	0.493
0.2	0.1	-1	0.2	201	0.477	0.477	0.474	0.472
0.2	0	-1	0.2	217	0.326	0.326	0.324	0.322
0.2	-0.1	-1	0.1	182	0.31	0.309	0.309	0.307
0.2	-0.2	-1	0.1	177	0.302	0.302	0.302	0.302

	0.2	-0.3	-1	0.1	192	0.301	0.301	0.3	0.299
(0.5,0.5,0.5,0.5)									
0.025	0.3	-0.3	0	1	0.516	0.151	0.686	0.054	
0.025	0.2	-0.2	0	0	0.74	0.377	0.791	0.168	
0.025	0.1	-0.1	0	0	1	0.624	1	0.382	
0.025	0	0	0	0	1	0.653	1	0.386	
0.025	-0.1	0.1	0	1	0.811	0.476	0.741	0.148	
0.025	-0.2	0.2	0	0	0.671	0.304	0.743	0.124	
0.025	-0.3	0.3	0	0	0.658	0.314	0.533	-0.075	
0.05	0.3	-0.3	0	0	0.575	0.203	0.71	0.079	
0.05	0.2	-0.2	0	0	0.778	0.426	0.829	0.229	
0.05	0.1	-0.1	0	0	1	0.635	0.997	0.381	
0.05	0	0	0.1	0	0.952	0.584	0.947	0.343	
0.05	-0.1	0.1	0.1	0	0.773	0.441	0.734	0.132	
0.05	-0.2	0.2	0.1	0	0.664	0.311	0.685	0.082	
0.05	-0.3	0.3	0.1	0	0.663	0.32	0.578	-0.005	
0.075	0.3	-0.3	0.1	1	0.615	0.243	0.719	0.085	
0.075	0.2	-0.2	0.1	0	0.865	0.516	0.856	0.253	
0.075	0.1	0	0.1	0	0.965	0.613	0.96	0.367	
0.075	0	0.1	0.1	0	0.879	0.51	0.879	0.284	
0.075	-0.1	0.2	0.2	0	0.743	0.414	0.732	0.153	
0.075	-0.2	0.3	0.2	0	0.658	0.3	0.61	-0.015	
0.075	-0.3	0.4	0.2	0	0.625	0.246	0.551	-0.061	
0.1	0.3	-0.2	0.1	1	0.662	0.338	0.76	0.169	
0.1	0.2	-0.1	0.1	0	0.874	0.514	0.883	0.251	
0.1	0.1	0	0.2	1	0.912	0.576	0.887	0.301	
0.1	0	0.1	0.2	0	0.788	0.431	0.809	0.219	
0.1	-0.1	0.2	0.2	0	0.729	0.386	0.712	0.124	
0.1	-0.2	0.3	0.3	1	0.645	0.266	0.595	-0.022	
0.1	-0.3	0.4	0.4	0	0.648	0.285	0.551	-0.052	
0.2	0.3	0	0.4	0	0.712	0.324	0.677	0.051	
0.2	0.2	0	0.6	0	0.723	0.378	0.631	0.039	
0.2	0.1	0.1	0.8	2	0.683	0.332	0.603	0.002	
0.2	0	0.2	0.8	0	0.69	0.341	0.585	0.003	
0.2	-0.1	0.3	1.1	0	0.68	0.317	0.516	-0.104	
0.2	-0.2	0.2	1.2	0	0.666	0.32	0.519	-0.061	
0.2	-0.3	0.2	1.225	0	0.663	0.299	0.52	-0.088	
(0.1,0.9,0.9,0.9)									
0.025	0.3	-0.3	0	6	0.742	-0.002	0.902	-0.005	
0.025	0.2	-0.2	0	0	0.863	0.091	0.935	0.027	
0.025	0.1	-0.1	0	0	1	0.241	1	0.075	
0.025	0	0	0	0	1	0.209	1	0.076	
0.025	-0.1	0.1	0	0	0.74	-0.035	0.868	-0.039	

0.025	-0.2	0.2	0	0	0.473	-0.293	0.841	-0.084
0.025	-0.3	0.3	0	0	0.287	-0.468	0.577	-0.329
0.05	0.3	-0.3	0	5	0.777	-0.004	0.916	-0.012
0.05	0.2	-0.2	0	2	0.845	0.071	0.949	0.015
0.05	0.1	-0.1	0	0	1	0.244	1	0.084
0.05	0	0	0	0	0.982	0.189	0.987	0.054
0.05	-0.1	0.1	0	0	0.746	0	0.848	-0.061
0.05	-0.2	0.2	0	0	0.419	-0.369	0.828	-0.097
0.05	-0.3	0.3	0	0	0.298	-0.457	0.639	-0.273
0.075	0.3	-0.3	0.1	1	0.789	0.003	0.908	-0.006
0.075	0.2	-0.2	0.1	0	0.897	0.11	0.946	0.034
0.075	0.1	-0.1	0.1	0	0.99	0.209	0.992	0.073
0.075	0	0	0.1	0	0.931	0.148	0.964	0.043
0.075	-0.1	0.1	0.1	0	0.706	-0.066	0.885	-0.038
0.075	-0.2	0.2	0.1	0	0.452	-0.319	0.78	-0.147
0.075	-0.3	0.3	0.2	0	0.28	-0.508	0.678	-0.247
0.1	0.3	-0.2	0.1	3	0.792	0.023	0.929	0.002
0.1	0.2	-0.1	0.1	0	0.871	0.106	0.948	0.029
0.1	0.1	-0.1	0.1	0	0.932	0.177	0.967	0.057
0.1	0	0	0.1	0	0.845	0.063	0.933	0.009
0.1	-0.1	0.1	0.1	0	0.659	-0.123	0.868	-0.062
0.1	-0.2	0.2	0.2	0	0.486	-0.25	0.749	-0.153
0.1	-0.3	0.3	0.2	0	0.345	-0.416	0.657	-0.255
0.2	0.3	-0.1	0.3	5	0.654	-0.101	0.855	-0.072
0.2	0.2	0	0.3	2	0.687	-0.081	0.808	-0.105
0.2	0.1	0	0.3	0	0.678	-0.066	0.805	-0.094
0.2	0	0.1	0.4	0	0.592	-0.192	0.73	-0.193
0.2	-0.1	0.2	0.4	0	0.548	-0.24	0.685	-0.236
0.2	-0.2	0.2	0.5	0	0.479	-0.301	0.643	-0.271
0.2	-0.3	0.2	0.5	0	0.499	-0.247	0.618	-0.29

(0.5,0.5,0.5,0.9)

0.025	0.3	-0.3	0	3	0.658	0.067	0.819	0.017
0.025	0.2	-0.2	0	0	0.783	0.211	0.851	0.064
0.025	0.1	-0.1	0	0	0.999	0.431	1	0.21
0.025	0	0	0	1	0.999	0.429	0.999	0.188
0.025	-0.1	0.1	0	0	0.736	0.17	0.764	-0.038
0.025	-0.2	0.2	0	0	0.548	-0.014	0.752	-0.057
0.025	-0.3	0.3	0	0	0.449	-0.124	0.505	-0.305
0.05	0.3	-0.3	0	4	0.613	0.064	0.792	0.013
0.05	0.2	-0.2	0	1	0.821	0.229	0.867	0.077
0.05	0.1	-0.1	0	1	1	0.43	0.998	0.195
0.05	0	0	0	0	0.965	0.405	0.968	0.184
0.05	-0.1	0.1	0	0	0.708	0.149	0.777	-0.014

0.05	-0.2	0.2	0	0	0.484	-0.128	0.735	-0.077
0.05	-0.3	0.3	0.1	0	0.457	-0.105	0.533	-0.262
0.075	0.3	-0.3	0.1	2	0.674	0.099	0.826	0.024
0.075	0.2	-0.2	0.1	0	0.858	0.284	0.888	0.104
0.075	0.1	-0.1	0.1	1	0.979	0.396	0.976	0.171
0.075	0	0	0.1	0	0.885	0.328	0.92	0.135
0.075	-0.1	0.1	0.1	0	0.652	0.044	0.809	0.003
0.075	-0.2	0.2	0.1	1	0.5	-0.084	0.657	-0.14
0.075	-0.3	0.3	0.1	0	0.453	-0.131	0.551	-0.25
0.1	0.3	-0.2	0.1	5	0.69	0.135	0.854	0.05
0.1	0.2	-0.1	0.1	0	0.858	0.286	0.904	0.097
0.1	0.1	0	0.1	0	0.901	0.33	0.93	0.132
0.1	0	0.1	0.2	0	0.802	0.224	0.857	0.049
0.1	-0.1	0.2	0.2	0	0.635	0.055	0.767	-0.041
0.1	-0.2	0.2	0.2	0	0.533	-0.032	0.634	-0.165
0.1	-0.3	0.3	0.3	0	0.438	-0.163	0.546	-0.262
0.2	0.3	0	0.4	5	0.641	0.049	0.773	-0.019
0.2	0.2	0	0.4	0	0.656	0.09	0.681	-0.112
0.2	0.1	0.1	0.5	0	0.627	0.089	0.686	-0.088
0.2	0	0.2	0.7	0	0.583	0.006	0.646	-0.152
0.2	-0.1	0.3	0.8	0	0.572	0.012	0.556	-0.249
0.2	-0.2	0.2	0.8	0	0.536	-0.046	0.52	-0.266
0.2	-0.3	0.3	0.7	0	0.539	-0.028	0.51	-0.296

(0.1,0.5,0.5,0.5)

0.025	0.3	-0.3	0	1	0.544	0.356	0.567	0.154
0.025	0.2	-0.2	0	2	0.791	0.613	0.727	0.342
0.025	0.1	-0.1	0	0	1	0.833	1	0.616
0.025	0	0	0	1	0.999	0.788	0.999	0.563
0.025	-0.1	0.1	0	0	0.885	0.717	0.776	0.384
0.025	-0.2	0.2	0	0	0.838	0.668	0.79	0.41
0.025	-0.3	0.3	0	2	0.823	0.648	0.674	0.297
0.05	0.3	-0.3	0	2	0.581	0.385	0.584	0.171
0.05	0.2	-0.2	0	0	0.785	0.611	0.797	0.386
0.05	0.1	-0.1	0.1	1	0.999	0.815	0.999	0.598
0.05	0	0	0.1	0	0.981	0.821	0.948	0.568
0.05	-0.1	0.1	0.1	1	0.863	0.672	0.781	0.372
0.05	-0.2	0.2	0.1	2	0.815	0.626	0.75	0.36
0.05	-0.3	0.3	0.1	0	0.803	0.606	0.66	0.26
0.075	0.3	-0.3	0.1	2	0.636	0.442	0.626	0.227
0.075	0.2	-0.1	0.1	0	0.869	0.692	0.861	0.429
0.075	0.1	0	0.1	1	0.977	0.809	0.979	0.603
0.075	0	0.1	0.1	0	0.932	0.721	0.885	0.461
0.075	-0.1	0.2	0.2	1	0.836	0.651	0.78	0.392

0.075	-0.2	0.3	0.3	0	0.812	0.618	0.698	0.285
0.075	-0.3	0.4	0.2	2	0.803	0.608	0.656	0.258
0.1	0.3	-0.2	0.1	3	0.74	0.543	0.705	0.306
0.1	0.2	-0.1	0.2	0	0.92	0.715	0.883	0.476
0.1	0.1	0	0.2	2	0.944	0.77	0.911	0.499
0.1	0	0.1	0.3	0	0.882	0.707	0.832	0.439
0.1	-0.1	0.2	0.3	0	0.843	0.665	0.768	0.377
0.1	-0.2	0.3	0.4	0	0.811	0.621	0.715	0.34
0.1	-0.3	0.5	0.6	0	0.811	0.62	0.679	0.305
0.2	0.3	0	0.7	0	0.802	0.613	0.696	0.298
0.2	0.2	0	0.6	0	0.82	0.644	0.663	0.249
0.2	0.1	0.1	0.8	0	0.833	0.663	0.704	0.328
0.2	0	0.2	0.9	2	0.818	0.642	0.642	0.242
0.2	-0.1	0.3	1.2	0	0.796	0.6	0.647	0.258
0.2	-0.2	0.2	2.6	1	0.812	0.638	0.635	0.246
0.2	-0.3	0.2	2.7	1	0.784	0.581	0.595	0.171
(0.1,0.1,0.1,0.9)								
0.025	0.3	-0.3	0	6	0.621	0.529	0.521	0.289
0.025	0.2	-0.2	0	7	0.856	0.777	0.768	0.55
0.025	0.1	-0.1	0	1	0.999	0.936	0.999	0.779
0.025	0	0	0	5	0.995	0.902	0.995	0.77
0.025	-0.1	0.1	0	0	0.93	0.838	0.848	0.604
0.025	-0.2	0.2	0	2	0.925	0.846	0.841	0.605
0.025	-0.3	0.3	0	1	0.905	0.81	0.765	0.507
0.05	0.3	-0.3	0	12	0.613	0.529	0.501	0.28
0.05	0.2	-0.2	0	8	0.861	0.778	0.776	0.56
0.05	0.1	-0.1	0	2	0.998	0.919	0.998	0.779
0.05	0	0	0	4	0.994	0.901	0.991	0.766
0.05	-0.1	0.1	0.1	4	0.935	0.851	0.847	0.614
0.05	-0.2	0.2	0.1	1	0.918	0.833	0.844	0.61
0.05	-0.3	0.3	0.1	4	0.91	0.823	0.786	0.552
0.075	0.3	-0.3	0	6	0.665	0.568	0.559	0.316
0.075	0.2	-0.2	0.1	6	0.881	0.803	0.814	0.598
0.075	0.1	-0.1	0.1	8	0.993	0.908	0.992	0.778
0.075	0	0	0.1	2	0.986	0.894	0.967	0.727
0.075	-0.1	0.2	0.1	6	0.936	0.861	0.869	0.672
0.075	-0.2	0.3	0.2	2	0.914	0.826	0.824	0.597
0.075	-0.3	0.4	0.2	2	0.9	0.802	0.759	0.5
0.1	0.3	-0.3	0.1	6	0.724	0.633	0.639	0.403
0.1	0.2	-0.1	0.1	3	0.926	0.846	0.879	0.674
0.1	0.1	0	0.1	3	0.99	0.89	0.986	0.771
0.1	0	0.1	0.2	1	0.968	0.894	0.933	0.736
0.1	-0.1	0.2	0.2	1	0.928	0.84	0.85	0.627

0.1	-0.2	0.3	0.3	1	0.91	0.818	0.814	0.568
0.1	-0.3	0.5	0.4	3	0.917	0.837	0.805	0.596
0.2	0.3	0	0.6	8	0.858	0.78	0.729	0.507
0.2	0.2	0	0.5	6	0.871	0.79	0.805	0.576
0.2	0.1	0.1	0.7	2	0.899	0.799	0.824	0.572
0.2	0	0.3	0.9	4	0.874	0.772	0.794	0.572
0.2	-0.1	0.4	0.9	3	0.867	0.779	0.741	0.509
0.2	-0.2	0.2	2.2	4	0.869	0.786	0.745	0.516
0.2	-0.3	0.3	2.5	3	0.866	0.785	0.722	0.489

Table A4-5: 4 inspectors, 20 defects and 0.4 degree of difficulty.

4ins/20 def/0.4 dif

(0.1,0.4,0.6,0.9)

SD	Er	MRE	IQR	Fail	DA (.7)	RDA (.7)	DA (.57)	RDA (.57)
0.025	0.3	-0.3	0	0	0.378	0.114	0.647	0.014
0.025	0.2	-0.2	0	0	0.646	0.369	0.739	0.108
0.025	0.1	-0.1	0	0	0.847	0.573	0.841	0.216
0.025	0	0	0	0	0.994	0.719	1	0.377
0.025	-0.1	0.1	0	0	0.796	0.537	0.785	0.163
0.025	-0.2	0.2	0	0	0.737	0.452	0.654	0.031
0.025	-0.3	0.3	0	0	0.711	0.421	0.52	-0.103
0.05	0.3	-0.25	0.05	0	0.45	0.14	0.657	0.02
0.05	0.2	-0.2	0.05	0	0.626	0.379	0.735	0.112
0.05	0.1	-0.1	0.05	0	0.893	0.631	0.83	0.216
0.05	0	0	0.05	0	0.927	0.675	0.96	0.336
0.05	-0.1	0.1	0.05	0	0.778	0.516	0.755	0.109
0.05	-0.2	0.2	0.1	0	0.729	0.451	0.592	-0.04
0.05	-0.3	0.3	0.1	0	0.749	0.498	0.489	-0.135
0.075	0.3	-0.25	0.05	0	0.471	0.201	0.698	0.053
0.075	0.2	-0.15	0.1	0	0.685	0.421	0.739	0.122
0.075	0.1	-0.05	0.1	0	0.905	0.612	0.86	0.213
0.075	0	0.05	0.1	0	0.877	0.609	0.861	0.242
0.075	-0.1	0.1	0.15	0	0.785	0.529	0.751	0.123
0.075	-0.2	0.2	0.15	0	0.763	0.521	0.621	0.046
0.075	-0.3	0.3	0.2	0	0.717	0.432	0.49	-0.145
0.1	0.3	-0.2	0.1	0	0.573	0.298	0.698	0.069
0.1	0.2	-0.1	0.1	0	0.766	0.482	0.757	0.133
0.1	0.1	-0.05	0.15	0	0.866	0.619	0.799	0.212
0.1	0	0.05	0.15	0	0.829	0.571	0.778	0.132
0.1	-0.1	0.15	0.25	0	0.778	0.514	0.668	0.035
0.1	-0.2	0.25	0.3	0	0.778	0.539	0.633	0.045
0.1	-0.3	0.3	0.35	0	0.751	0.5	0.503	-0.113

0.2	0.3	0	0.45	0	0.623	0.337	0.613	-0.017
0.2	0.2	0	0.45	0	0.688	0.429	0.627	0.007
0.2	0.1	0.05	0.45	0	0.69	0.415	0.626	-0.001
0.2	0	0.15	0.55	0	0.675	0.39	0.573	-0.068
0.2	-0.1	0.2	0.65	0	0.736	0.473	0.553	-0.039
0.2	-0.2	0.25	0.65	0	0.725	0.451	0.524	-0.098
0.2	-0.3	0.25	0.7	0	0.734	0.473	0.517	-0.099
(0.1,0.1,0.9,0.9)								
0.025	0.3	-0.3	0	0	0.385	0.094	0.67	0.012
0.025	0.2	-0.2	0	0	0.632	0.295	0.791	0.086
0.025	0.1	-0.1	0	0	0.824	0.481	0.87	0.18
0.025	0	0	0	0	0.999	0.711	1	0.305
0.025	-0.1	0.1	0	0	0.756	0.432	0.815	0.111
0.025	-0.2	0.2	0	0	0.692	0.364	0.696	0.074
0.025	-0.3	0.3	0	0	0.663	0.326	0.514	-0.149
0.05	0.3	-0.3	0.05	1	0.417	0.114	0.664	0.02
0.05	0.2	-0.2	0.05	0	0.648	0.31	0.759	0.068
0.05	0.1	-0.1	0.05	0	0.893	0.567	0.868	0.181
0.05	0	0	0.05	0	0.959	0.65	0.978	0.286
0.05	-0.1	0.1	0.05	0	0.74	0.424	0.789	0.12
0.05	-0.2	0.2	0.05	0	0.692	0.375	0.606	-0.047
0.05	-0.3	0.3	0.1	0	0.677	0.354	0.452	-0.218
0.075	0.3	-0.25	0.05	0	0.46	0.124	0.728	0.016
0.075	0.2	-0.15	0.1	0	0.682	0.356	0.782	0.111
0.075	0.1	-0.05	0.05	0	0.884	0.58	0.855	0.167
0.075	0	0.05	0.05	0	0.873	0.569	0.907	0.243
0.075	-0.1	0.1	0.1	0	0.727	0.413	0.735	0.034
0.075	-0.2	0.2	0.15	0	0.698	0.387	0.571	-0.109
0.075	-0.3	0.3	0.15	0	0.681	0.362	0.461	-0.211
0.1	0.3	-0.2	0.1	0	0.536	0.248	0.719	0.06
0.1	0.2	-0.15	0.15	0	0.717	0.415	0.775	0.105
0.1	0.1	-0.05	0.1	0	0.877	0.565	0.836	0.16
0.1	0	0.05	0.15	0	0.818	0.508	0.826	0.152
0.1	-0.1	0.15	0.2	0	0.733	0.412	0.703	0.012
0.1	-0.2	0.25	0.25	0	0.707	0.394	0.618	-0.041
0.1	-0.3	0.3	0.25	0	0.662	0.322	0.518	-0.147
0.2	0.3	-0.05	0.35	0	0.607	0.281	0.681	-0.007
0.2	0.2	0.05	0.35	0	0.674	0.346	0.669	0.005
0.2	0.1	0.05	0.45	0	0.68	0.363	0.647	-0.033
0.2	0	0.1	0.5	0	0.678	0.343	0.581	-0.098
0.2	-0.1	0.15	0.55	0	0.688	0.354	0.556	-0.137
0.2	-0.2	0.2	0.6	0	0.713	0.411	0.543	-0.129
0.2	-0.3	0.25	0.65	0	0.687	0.364	0.494	-0.165

(0.5,0.5,0.9,0.9)

0.025	0.3	-0.3	0	0	0.759	0.007	0.955	0
0.025	0.2	-0.2	0	0	0.814	0.048	0.96	0.008
0.025	0.1	-0.1	0	0	0.856	0.131	0.972	0.022
0.025	0	0	0	0	0.996	0.291	0.998	0.065
0.025	-0.1	0.1	0	0	0.575	-0.172	0.922	-0.031
0.025	-0.2	0.2	0	0	0.449	-0.285	0.78	-0.164
0.025	-0.3	0.3	0	0	0.262	-0.491	0.594	-0.367
0.05	0.3	-0.25	0.05	0	0.769	0.003	0.959	0
0.05	0.2	-0.15	0.05	0	0.83	0.062	0.944	0.008
0.05	0.1	-0.1	0.05	0	0.884	0.178	0.966	0.019
0.05	0	0	0.05	0	0.92	0.166	0.981	0.027
0.05	-0.1	0.1	0.1	0	0.583	-0.166	0.921	-0.032
0.05	-0.2	0.2	0.1	0	0.416	-0.334	0.794	-0.145
0.05	-0.3	0.3	0.05	0	0.282	-0.472	0.622	-0.325
0.075	0.3	-0.25	0.05	0	0.759	0.015	0.94	-0.001
0.075	0.2	-0.15	0.1	0	0.8	0.054	0.956	0.003
0.075	0.1	-0.05	0.1	0	0.858	0.138	0.951	0.011
0.075	0	0.05	0.1	0	0.819	0.079	0.951	0.007
0.075	-0.1	0.1	0.1	0	0.603	-0.17	0.895	-0.05
0.075	-0.2	0.2	0.15	0	0.419	-0.336	0.806	-0.139
0.075	-0.3	0.25	0.2	0	0.352	-0.378	0.644	-0.302
0.1	0.3	-0.2	0.1	0	0.751	0.025	0.94	0.003
0.1	0.2	-0.1	0.1	0	0.803	0.069	0.944	0.006
0.1	0.1	-0.05	0.15	0	0.799	0.04	0.932	-0.018
0.1	0	0.05	0.2	0	0.722	-0.032	0.897	-0.05
0.1	-0.1	0.1	0.15	0	0.577	-0.155	0.849	-0.082
0.1	-0.2	0.15	0.2	0	0.489	-0.241	0.78	-0.171
0.1	-0.3	0.2	0.25	0	0.398	-0.324	0.659	-0.283
0.2	0.3	-0.05	0.3	0	0.628	-0.099	0.849	-0.086
0.2	0.2	0	0.3	0	0.599	-0.146	0.811	-0.14
0.2	0.1	0.05	0.3	0	0.593	-0.136	0.799	-0.148
0.2	0	0.1	0.35	0	0.527	-0.227	0.751	-0.187
0.2	-0.1	0.1	0.4	0	0.506	-0.257	0.723	-0.232
0.2	-0.2	0.15	0.4	0	0.496	-0.264	0.726	-0.238
0.2	-0.3	0.15	0.45	0	0.494	-0.254	0.647	-0.299

(0.9,0.9,0.9,0.9)

0.025	0.3	-0.3	0	0	0.954	0	0.998	0
0.025	0.2	-0.2	0	0	0.966	0.003	0.997	0
0.025	0.1	-0.1	0	0	0.966	0.01	0.998	0
0.025	0	0	0	0	1	0.027	1	0.004
0.025	-0.1	0.1	0	0	0.805	-0.153	0.99	-0.007
0.025	-0.2	0.2	0	0	0.586	-0.379	0.967	-0.029

0.025	-0.3	0.3	0	0	0.182	-0.785	0.911	-0.089
0.05	0.3	-0.25	0	0	0.974	-0.001	0.996	0
0.05	0.2	-0.15	0.05	0	0.972	0.002	0.998	0
0.05	0.1	-0.1	0.05	0	0.974	0.011	0.999	0.002
0.05	0	0	0.05	0	0.986	0.024	0.997	-0.002
0.05	-0.1	0.1	0.05	0	0.825	-0.138	0.996	-0.001
0.05	-0.2	0.15	0.05	0	0.602	-0.352	0.978	-0.017
0.05	-0.3	0.25	0.1	0	0.334	-0.622	0.906	-0.093
0.075	0.3	-0.2	0.1	0	0.971	0.001	0.999	0
0.075	0.2	-0.15	0.05	0	0.968	0.002	0.997	0
0.075	0.1	-0.05	0.1	0	0.97	0.003	0.999	0.001
0.075	0	0	0.05	0	0.938	-0.029	0.996	-0.001
0.075	-0.1	0.1	0.1	0	0.836	-0.137	0.989	-0.006
0.075	-0.2	0.15	0.1	0	0.666	-0.298	0.976	-0.021
0.075	-0.3	0.2	0.15	0	0.454	-0.505	0.925	-0.073
0.1	0.3	-0.15	0.1	0	0.958	-0.001	0.996	-0.001
0.1	0.2	-0.1	0.1	0	0.957	-0.007	1	0
0.1	0.1	-0.05	0.15	0	0.949	-0.012	0.995	-0.001
0.1	0	0.05	0.15	0	0.892	-0.072	0.989	-0.008
0.1	-0.1	0.1	0.15	0	0.797	-0.164	0.981	-0.017
0.1	-0.2	0.15	0.2	0	0.712	-0.25	0.954	-0.044
0.1	-0.3	0.2	0.2	0	0.547	-0.412	0.912	-0.086
0.2	0.3	-0.05	0.2	0	0.871	-0.089	0.978	-0.02
0.2	0.2	0	0.2	0	0.841	-0.125	0.972	-0.027
0.2	0.1	0	0.2	0	0.797	-0.167	0.955	-0.044
0.2	0	0.05	0.25	0	0.756	-0.207	0.917	-0.079
0.2	-0.1	0.05	0.25	0	0.729	-0.239	0.912	-0.085
0.2	-0.2	0.1	0.3	0	0.699	-0.258	0.91	-0.089
0.2	-0.3	0.1	0.3	0	0.649	-0.32	0.888	-0.11

(0.1,0.1,0.1,0.1)

0.025	0.3	-0.25	0.1	34	0.966	0.966	0.959	0.959
0.025	0.2	-0.15	0.1	26	0.974	0.974	0.974	0.974
0.025	0.1	-0.05	0.2	33	0.967	0.967	0.967	0.967
0.025	0	0.1	0.3	36	0.964	0.964	0.964	0.964
0.025	-0.1	0.2	0.45	49	0.951	0.951	0.951	0.951
0.025	-0.2	0.35	0.65	42	0.958	0.958	0.958	0.958
0.025	-0.3	0.5	0.9	43	0.957	0.957	0.957	0.957
0.05	0.3	-0.15	0.75	38	0.962	0.962	0.958	0.958
0.05	0.2	0	1.9	37	0.963	0.963	0.963	0.963
0.05	0.1	0.2	8	41	0.959	0.959	0.959	0.959
0.05	0	0.05	9.85	35	0.965	0.965	0.965	0.965
0.05	-0.1	0.2	4.8	34	0.966	0.966	0.966	0.966
0.05	-0.2	0.3	3.95	37	0.963	0.963	0.963	0.963

0.05	-0.3	0.4	3.85	47	0.953	0.953	0.953	0.953
0.075	0.3	-0.25	3.35	48	0.952	0.952	0.952	0.952
0.075	0.2	-0.1	2.5	35	0.965	0.965	0.965	0.965
0.075	0.1	0	2.65	27	0.973	0.973	0.973	0.973
0.075	0	0.15	3.55	43	0.957	0.957	0.957	0.957
0.075	-0.1	0.2	6.05	45	0.955	0.955	0.955	0.955
0.075	-0.2	0.4	26.35	51	0.949	0.949	0.949	0.949
0.075	-0.3	-1.3	12.25	33	0.967	0.967	0.967	0.967
0.1	0.3	-0.2	2.25	44	0.956	0.956	0.956	0.956
0.1	0.2	-0.05	4.4	34	0.966	0.966	0.966	0.966
0.1	0.1	-1.25	65.55	35	0.965	0.965	0.965	0.965
0.1	0	-1.2	4.4875	38	0.962	0.962	0.962	0.962
0.1	-0.1	-1.15	3.05	26	0.974	0.974	0.974	0.974
0.1	-0.2	-1.1	1.4	36	0.964	0.964	0.964	0.964
0.1	-0.3	-1.1	2.4	34	0.966	0.966	0.966	0.966
0.2	0.3	-1.05	0.4	34	0.705	0.705	0.704	0.704
0.2	0.2	-1.05	0.35	38	0.684	0.684	0.684	0.684
0.2	0.1	-1	0.3	34	0.581	0.581	0.581	0.581
0.2	0	-1	0.25	37	0.545	0.545	0.543	0.543
0.2	-0.1	-1	0.25	35	0.56	0.56	0.56	0.56
0.2	-0.2	-1	0.2	44	0.549	0.549	0.547	0.547
0.2	-0.3	-1	0.2	25	0.555	0.555	0.55	0.55

(0.5,0.5,0.5,0.5)

0.025	0.3	-0.3	0	0	0.369	0.151	0.59	0.029
0.025	0.2	-0.2	0	0	0.674	0.451	0.701	0.152
0.025	0.1	-0.1	0	0	0.847	0.622	0.839	0.273
0.025	0	0	0	0	0.978	0.772	1	0.435
0.025	-0.1	0.1	0	0	0.804	0.56	0.786	0.199
0.025	-0.2	0.2	0	0	0.77	0.53	0.653	0.087
0.025	-0.3	0.3	0.05	0	0.785	0.569	0.564	0.031
0.05	0.3	-0.25	0.05	0	0.427	0.218	0.594	0.045
0.05	0.2	-0.15	0.05	0	0.694	0.474	0.711	0.166
0.05	0.1	-0.05	0.05	0	0.92	0.71	0.856	0.291
0.05	0	0.05	0.05	0	0.905	0.695	0.935	0.378
0.05	-0.1	0.1	0.1	0	0.809	0.586	0.794	0.27
0.05	-0.2	0.2	0.15	0	0.795	0.589	0.613	0.083
0.05	-0.3	0.3	0.15	0	0.798	0.596	0.513	-0.046
0.075	0.3	-0.25	0.05	0	0.529	0.31	0.639	0.084
0.075	0.2	-0.15	0.1	0	0.753	0.523	0.758	0.195
0.075	0.1	-0.05	0.15	0	0.885	0.638	0.829	0.273
0.075	0	0.05	0.15	0	0.864	0.659	0.769	0.212
0.075	-0.1	0.15	0.2	0	0.823	0.606	0.737	0.198
0.075	-0.2	0.25	0.25	0	0.79	0.566	0.594	0.037

0.075	-0.3	0.3	0.3	0	0.766	0.532	0.532	-0.033
0.1	0.3	-0.2	0.15	0	0.66	0.426	0.683	0.115
0.1	0.2	-0.1	0.15	0	0.789	0.562	0.738	0.2
0.1	0.1	0	0.25	0	0.842	0.646	0.74	0.211
0.1	0	0.1	0.3	0	0.821	0.601	0.688	0.123
0.1	-0.1	0.2	0.35	0	0.797	0.577	0.66	0.107
0.1	-0.2	0.25	0.4	0	0.784	0.551	0.604	0.048
0.1	-0.3	0.35	0.5	0	0.804	0.6	0.581	0.05
0.2	0.3	0	0.5	0	0.695	0.479	0.589	0.034
0.2	0.2	0.1	0.6	0	0.703	0.488	0.594	0.027
0.2	0.1	0.15	0.65	0	0.739	0.517	0.588	0.019
0.2	0	0.2	0.75	0	0.722	0.506	0.567	-0.002
0.2	-0.1	0.25	0.85	0	0.732	0.496	0.546	-0.002
0.2	-0.2	0.3	0.9	0	0.723	0.478	0.489	-0.104
0.2	-0.3	0.3	1	0	0.747	0.533	0.543	-0.006
(0.1,0.9,0.9,0.9)								
0.025	0.3	-0.3	0	0	0.764	0.002	0.952	0
0.025	0.2	-0.2	0	0	0.82	0.044	0.963	0.007
0.025	0.1	-0.1	0	0	0.886	0.102	0.974	0.017
0.025	0	0	0	0	0.998	0.214	1	0.051
0.025	-0.1	0.1	0	0	0.637	-0.143	0.938	-0.011
0.025	-0.2	0.2	0	0	0.428	-0.346	0.806	-0.154
0.025	-0.3	0.3	0	0	0.214	-0.592	0.654	-0.316
0.05	0.3	-0.25	0.05	0	0.784	0.005	0.949	0
0.05	0.2	-0.15	0.05	0	0.815	0.035	0.966	0.003
0.05	0.1	-0.1	0.05	0	0.903	0.119	0.965	0.011
0.05	0	0	0.05	0	0.955	0.16	0.99	0.032
0.05	-0.1	0.1	0.05	0	0.632	-0.141	0.94	-0.019
0.05	-0.2	0.2	0.05	0	0.382	-0.407	0.812	-0.154
0.05	-0.3	0.25	0.05	0	0.267	-0.522	0.672	-0.288
0.075	0.3	-0.25	0.05	0	0.778	0.01	0.955	-0.002
0.075	0.2	-0.15	0.05	0	0.832	0.053	0.956	0.006
0.075	0.1	-0.05	0.1	0	0.883	0.108	0.968	0.006
0.075	0	0	0.05	0	0.859	0.093	0.973	0.013
0.075	-0.1	0.1	0.1	0	0.63	-0.159	0.93	-0.035
0.075	-0.2	0.15	0.15	0	0.418	-0.348	0.825	-0.124
0.075	-0.3	0.25	0.15	0	0.31	-0.467	0.694	-0.269
0.1	0.3	-0.2	0.1	0	0.78	0.014	0.959	0.001
0.1	0.2	-0.1	0.1	0	0.848	0.076	0.951	0.008
0.1	0.1	-0.05	0.15	0	0.823	0.052	0.947	-0.007
0.1	0	0.05	0.15	0	0.775	0.007	0.919	-0.028
0.1	-0.1	0.1	0.15	0	0.611	-0.171	0.889	-0.067
0.1	-0.2	0.15	0.15	0	0.509	-0.262	0.798	-0.169

0.1	-0.3	0.2	0.25	0	0.364	-0.414	0.715	-0.244
0.2	0.3	-0.05	0.2625	0	0.68	-0.101	0.891	-0.066
0.2	0.2	0	0.25	0	0.65	-0.131	0.859	-0.103
0.2	0.1	0.05	0.3	0	0.594	-0.201	0.844	-0.127
0.2	0	0.1	0.3125	0	0.534	-0.252	0.784	-0.18
0.2	-0.1	0.1	0.35	0	0.553	-0.232	0.763	-0.196
0.2	-0.2	0.15	0.35	0	0.502	-0.267	0.736	-0.219
0.2	-0.3	0.15	0.35	0	0.503	-0.269	0.721	-0.227
(0.5,0.5,0.5,0.9)								
0.025	0.3	-0.3	0	0	0.533	0.026	0.837	0.002
0.025	0.2	-0.2	0	0	0.664	0.186	0.855	0.041
0.025	0.1	-0.1	0	0	0.827	0.329	0.905	0.086
0.025	0	0	0	0	0.993	0.501	0.997	0.173
0.025	-0.1	0.1	0	0	0.647	0.126	0.859	0.048
0.025	-0.2	0.2	0	0	0.517	-0.019	0.687	-0.142
0.025	-0.3	0.3	0	0	0.461	-0.085	0.487	-0.339
0.05	0.3	-0.25	0.05	0	0.543	0.047	0.831	0.008
0.05	0.2	-0.15	0.05	0	0.668	0.183	0.846	0.031
0.05	0.1	-0.1	0.05	0	0.867	0.37	0.897	0.069
0.05	0	0	0.05	0	0.901	0.383	0.954	0.121
0.05	-0.1	0.1	0.05	0	0.637	0.125	0.839	0.019
0.05	-0.2	0.2	0.1	0	0.529	0.018	0.615	-0.223
0.05	-0.3	0.3	0.1	0	0.498	-0.011	0.447	-0.39
0.075	0.3	-0.25	0.05	0	0.588	0.079	0.823	0.005
0.075	0.2	-0.15	0.1	0	0.743	0.217	0.865	0.046
0.075	0.1	-0.05	0.1	0	0.852	0.355	0.9	0.084
0.075	0	0.05	0.1	0	0.813	0.327	0.881	0.058
0.075	-0.1	0.1	0.15	0	0.647	0.144	0.782	-0.051
0.075	-0.2	0.2	0.2	0	0.556	0.073	0.624	-0.181
0.075	-0.3	0.3	0.2	0	0.539	0.057	0.507	-0.297
0.1	0.3	-0.2	0.1	0	0.603	0.134	0.842	0.023
0.1	0.2	-0.1	0.1	0	0.742	0.221	0.861	0.037
0.1	0.1	0	0.15	0	0.807	0.331	0.841	0.031
0.1	0	0.05	0.2	0	0.713	0.209	0.784	-0.042
0.1	-0.1	0.15	0.2	0	0.603	0.09	0.718	-0.117
0.1	-0.2	0.2	0.25	0	0.556	0.042	0.621	-0.193
0.1	-0.3	0.25	0.3	0	0.541	0.04	0.519	-0.299
0.2	0.3	0	0.4	0	0.562	0.058	0.724	-0.095
0.2	0.2	0	0.4	0	0.585	0.106	0.706	-0.14
0.2	0.1	0.05	0.45	0	0.577	0.09	0.652	-0.162
0.2	0	0.1	0.45	0	0.565	0.07	0.589	-0.242
0.2	-0.1	0.15	0.5	0	0.543	0.048	0.563	-0.25
0.2	-0.2	0.2	0.55	0	0.52	-0.009	0.553	-0.273

	0.2	-0.3	0.25	0.6125	0	0.532	0.02	0.508	-0.33
(0.1,0.5,0.5,0.5)									
	0.025	0.3	-0.3	0	0	0.486	0.419	0.396	0.121
	0.025	0.2	-0.2	0	0	0.795	0.732	0.653	0.385
	0.025	0.1	-0.1	0	0	0.938	0.875	0.855	0.594
	0.025	0	0	0	0	0.995	0.93	1	0.733
	0.025	-0.1	0.1	0	0	0.938	0.868	0.867	0.599
	0.025	-0.2	0.2	0.05	0	0.927	0.853	0.757	0.458
	0.025	-0.3	0.3	0.05	0	0.925	0.85	0.769	0.515
	0.05	0.3	-0.25	0.05	0	0.538	0.479	0.457	0.181
	0.05	0.2	-0.15	0.05	0	0.84	0.78	0.657	0.423
	0.05	0.1	-0.05	0.05	0	0.976	0.916	0.85	0.602
	0.05	0	0.05	0.1	0	0.959	0.889	0.955	0.686
	0.05	-0.1	0.15	0.1	0	0.95	0.899	0.827	0.572
	0.05	-0.2	0.25	0.1	0	0.919	0.838	0.742	0.444
	0.05	-0.3	0.35	0.2	0	0.917	0.834	0.74	0.465
	0.075	0.3	-0.25	0.05	0	0.655	0.588	0.528	0.259
	0.075	0.2	-0.15	0.1	0	0.856	0.776	0.757	0.468
	0.075	0.1	0	0.15	0	0.961	0.895	0.867	0.592
	0.075	0	0.05	0.2	0	0.935	0.857	0.869	0.58
	0.075	-0.1	0.2	0.2	0	0.926	0.85	0.799	0.523
	0.075	-0.2	0.3	0.3	0	0.94	0.88	0.758	0.482
	0.075	-0.3	0.4	0.35	0	0.928	0.856	0.733	0.453
	0.1	0.3	-0.2	0.15	0	0.766	0.696	0.623	0.334
	0.1	0.2	-0.1	0.15	0	0.896	0.824	0.759	0.48
	0.1	0.1	0.05	0.25	0	0.943	0.881	0.816	0.548
	0.1	0	0.15	0.35	0	0.941	0.876	0.816	0.558
	0.1	-0.1	0.25	0.4	0	0.932	0.858	0.782	0.494
	0.1	-0.2	0.35	0.5	0	0.937	0.873	0.741	0.461
	0.1	-0.3	0.4	0.65	0	0.932	0.863	0.728	0.435
	0.2	0.3	0	0.65	0	0.871	0.803	0.675	0.387
	0.2	0.2	0.1	0.8	0	0.889	0.821	0.669	0.396
	0.2	0.1	0.2	1	0	0.903	0.838	0.707	0.417
	0.2	0	0.15	0.95	0	0.913	0.843	0.706	0.42
	0.2	-0.1	0.3	1.25	0	0.9	0.823	0.684	0.386
	0.2	-0.2	0.25	1.25	0	0.908	0.834	0.682	0.402
	0.2	-0.3	0.275	1.3625	0	0.903	0.835	0.659	0.353
(0.1,0.1,0.1,0.9)									
	0.025	0.3	-0.3	0	0	0.661	0.645	0.397	0.297
	0.025	0.2	-0.2	0	0	0.91	0.896	0.734	0.63
	0.025	0.1	-0.1	0	0	0.977	0.969	0.906	0.804
	0.025	0	0	0	0	1	0.975	1	0.887
	0.025	-0.1	0.1	0	0	0.98	0.96	0.94	0.838

0.025	-0.2	0.2	0	0	0.989	0.978	0.918	0.825
0.025	-0.3	0.3	0	0	0.983	0.966	0.904	0.804
0.05	0.3	-0.3	0	1	0.692	0.677	0.442	0.333
0.05	0.2	-0.2	0.05	0	0.915	0.902	0.747	0.649
0.05	0.1	-0.1	0.05	0	0.984	0.971	0.868	0.775
0.05	0	0	0.05	0	0.996	0.974	1	0.892
0.05	-0.1	0.15	0.05	0	0.978	0.956	0.941	0.837
0.05	-0.2	0.25	0.05	0	0.987	0.974	0.92	0.83
0.05	-0.3	0.35	0.1	0	0.986	0.972	0.918	0.832
0.075	0.3	-0.25	0.05	1	0.756	0.744	0.518	0.426
0.075	0.2	-0.15	0.05	0	0.913	0.893	0.783	0.671
0.075	0.1	-0.05	0.1	0	0.993	0.979	0.904	0.809
0.075	0	0.05	0.1	0	0.995	0.986	0.978	0.879
0.075	-0.1	0.15	0.15	0	0.987	0.974	0.934	0.842
0.075	-0.2	0.25	0.15	0	0.985	0.97	0.905	0.801
0.075	-0.3	0.4	0.2	0	0.987	0.974	0.907	0.812
0.1	0.3	-0.25	0.1	0	0.815	0.801	0.569	0.477
0.1	0.2	-0.15	0.05	0	0.921	0.907	0.807	0.689
0.1	0.1	0	0.1	0	0.989	0.968	0.936	0.824
0.1	0	0.1	0.2	0	0.985	0.967	0.946	0.856
0.1	-0.1	0.2	0.25	0	0.981	0.962	0.913	0.806
0.1	-0.2	0.35	0.3	0	0.983	0.966	0.9	0.797
0.1	-0.3	0.45	0.35	0	0.984	0.968	0.887	0.771
0.2	0.3	-0.05	0.5	0	0.928	0.909	0.767	0.664
0.2	0.2	0.1	0.65	0	0.96	0.948	0.825	0.732
0.2	0.1	0.1	0.85	0	0.965	0.95	0.882	0.773
0.2	0	0.25	1.05	0	0.991	0.983	0.883	0.776
0.2	-0.1	0.35	1.15	0	0.984	0.972	0.915	0.832
0.2	-0.2	0.4	1.3125	0	0.991	0.982	0.908	0.819
0.2	-0.3	0.45	1.3	0	0.98	0.961	0.875	0.757

Table A4-6: 4 inspectors, 30 defects and 0.4 degree of difficulty.

4 ins/30 def/0.4 diff

(0.1, 0.4, 0.6, 0.9)

SD	RE	MRE	IQR	Fail	DA(.7)	RDA	DA(.57)	RDA
0.025	0.3		-0.3	0	0	0.296	0.1	0.62
0.025	0.2		-0.2	0	0	0.463	0.26	0.669
0.025	0.1		-0.1	0	0	0.752	0.542	0.755
0.025	0		0	0	0	0.981	0.778	0.993
0.025	-0.1		0.1	0	0	0.793	0.568	0.843
0.025	-0.2		0.2	0	0	0.803	0.602	0.567
0.025	-0.3		0.3	0	0	0.77	0.554	0.422

0.05	0.3	-0.266666667	0	0	0.339	0.144	0.61	0.01
0.05	0.2	-0.166666667	0.033333333	0	0.565	0.363	0.696	0.071
0.05	0.1	-0.066666667	0.033333333	0	0.842	0.659	0.767	0.157
0.05	0	0.033333333	0.033333333	0	0.924	0.737	0.938	0.331
0.05	-0.1	0.1	0.066666667	0	0.839	0.664	0.787	0.178
0.05	-0.2	0.2	0.066666667	0	0.792	0.583	0.598	-0.017
0.05	-0.3	0.3	0.1	0	0.804	0.608	0.456	-0.161
0.075	0.3	-0.233333333	0.066666667	0	0.387	0.2	0.617	0.022
0.075	0.2	-0.133333333	0.066666667	0	0.659	0.466	0.683	0.076
0.075	0.1	-0.033333333	0.1	0	0.855	0.647	0.78	0.176
0.075	0	0.033333333	0.133333333	0	0.881	0.693	0.817	0.22
0.075	-0.1	0.133333333	0.133333333	0	0.826	0.627	0.723	0.104
0.075	-0.2	0.2	0.2	0	0.818	0.633	0.618	0.036
0.075	-0.3	0.266666667	0.2	0	0.805	0.609	0.505	-0.108
0.1	0.3	-0.2	0.1	0	0.512	0.311	0.656	0.051
0.1	0.2	-0.1	0.133333333	0	0.726	0.531	0.74	0.109
0.1	0.1	-0.033333333	0.166666667	0	0.813	0.607	0.771	0.171
0.1	0	0.066666667	0.2	0	0.818	0.626	0.708	0.104
0.1	-0.1	0.133333333	0.233333333	0	0.825	0.632	0.65	0.056
0.1	-0.2	0.2	0.233333333	0	0.795	0.586	0.568	-0.031
0.1	-0.3	0.266666667	0.333333333	0	0.812	0.621	0.527	-0.088
0.2	0.3	0	0.4	0	0.632	0.425	0.607	-0.015
0.2	0.2	0.033333333	0.4	0	0.721	0.533	0.588	-0.017
0.2	0.1	0.066666667	0.408333333	0	0.726	0.519	0.58	-0.036
0.2	0	0.133333333	0.433333333	0	0.761	0.573	0.553	-0.068
0.2	-0.1	0.166666667	0.533333333	0	0.758	0.564	0.574	-0.008
0.2	-0.2	0.2	0.533333333	0	0.75	0.524	0.512	-0.103
0.2	-0.3	0.2	0.608333333	0	0.755	0.54	0.507	-0.118
(0.1, 0.1, 0.9, 0.9)								
0.025	0.3	-0.3	0	0	0.309	0.059	0.702	0.003
0.025	0.2	-0.2	0	0	0.473	0.219	0.688	0.024
0.025	0.1	-0.1	0	0	0.71	0.462	0.79	0.1
0.025	0	0	0	0	0.988	0.742	0.999	0.344
0.025	-0.1	0.1	0	0	0.782	0.543	0.836	0.142
0.025	-0.2	0.2	0	0	0.738	0.475	0.588	-0.087
0.025	-0.3	0.3	0.033333333	0	0.743	0.486	0.381	-0.31
0.05	0.3	-0.266666667	0	0	0.348	0.096	0.673	0.007
0.05	0.2	-0.166666667	0.033333333	0	0.495	0.242	0.756	0.036
0.05	0.1	-0.066666667	0.033333333	0	0.817	0.564	0.796	0.116
0.05	0	0	0.033333333	0	0.925	0.668	0.943	0.27
0.05	-0.1	0.1	0.066666667	0	0.78	0.539	0.809	0.151
0.05	-0.2	0.2	0.066666667	0	0.734	0.459	0.581	-0.113
0.05	-0.3	0.266666667	0.1	0	0.775	0.55	0.41	-0.266

0.075	0.3	-0.233333333	0.066666667	0	0.396	0.124	0.702	0.011
0.075	0.2	-0.133333333	0.066666667	0	0.618	0.38	0.704	0.051
0.075	0.1	-0.066666667	0.1	0	0.869	0.596	0.81	0.126
0.075	0	0.033333333	0.1	0	0.851	0.593	0.849	0.173
0.075	-0.1	0.133333333	0.133333333	0	0.752	0.482	0.752	0.092
0.075	-0.2	0.2	0.133333333	0	0.761	0.515	0.589	-0.088
0.075	-0.3	0.266666667	0.133333333	0	0.781	0.562	0.467	-0.18
0.1	0.3	-0.2	0.1	0	0.454	0.223	0.661	0.023
0.1	0.2	-0.1	0.1	0	0.685	0.427	0.748	0.071
0.1	0.1	-0.033333333	0.133333333	0	0.809	0.541	0.809	0.104
0.1	0	0.066666667	0.166666667	0	0.82	0.579	0.757	0.081
0.1	-0.1	0.133333333	0.2	0	0.791	0.556	0.688	0.026
0.1	-0.2	0.2	0.2	0	0.772	0.533	0.583	-0.094
0.1	-0.3	0.266666667	0.266666667	0	0.766	0.532	0.498	-0.165
0.2	0.3	-0.033333333	0.333333333	0	0.622	0.381	0.647	-0.043
0.2	0.2	0	0.333333333	0	0.66	0.399	0.627	-0.039
0.2	0.1	0.066666667	0.333333333	0	0.713	0.473	0.605	-0.042
0.2	0	0.133333333	0.433333333	0	0.723	0.479	0.55	-0.124
0.2	-0.1	0.133333333	0.466666667	0	0.739	0.502	0.555	-0.111
0.2	-0.2	0.166666667	0.433333333	0	0.711	0.456	0.517	-0.154
0.2	-0.3	0.2	0.533333333	0	0.751	0.509	0.476	-0.206
(0.5, 0.5, 0.9, 0.9)								
0.025	0.3	-0.3	0.033333333	0	0.761	0.002	0.973	0
0.025	0.2	-0.2	0	0	0.785	0.012	0.97	0
0.025	0.1	-0.1	0	0	0.829	0.078	0.968	0.003
0.025	0	0	0	0	0.985	0.219	0.997	0.025
0.025	-0.1	0.1	0	0	0.522	-0.267	0.964	-0.007
0.025	-0.2	0.2	0.033333333	0	0.328	-0.439	0.821	-0.142
0.025	-0.3	0.3	0.033333333	0	0.259	-0.497	0.576	-0.393
0.05	0.3	-0.266666667	0.033333333	0	0.773	0.003	0.975	0
0.05	0.2	-0.166666667	0.033333333	0	0.784	0.022	0.966	0
0.05	0.1	-0.066666667	0.066666667	0	0.868	0.107	0.974	0.002
0.05	0	0	0.033333333	0	0.898	0.161	0.977	0.001
0.05	-0.1	0.1	0.066666667	0	0.575	-0.176	0.951	-0.025
0.05	-0.2	0.166666667	0.066666667	0	0.376	-0.369	0.855	-0.115
0.05	-0.3	0.233333333	0.1	0	0.29	-0.442	0.665	-0.308
0.075	0.3	-0.2	0.066666667	0	0.779	0.011	0.972	0
0.075	0.2	-0.133333333	0.1	0	0.805	0.045	0.967	-0.001
0.075	0.1	-0.033333333	0.1	0	0.84	0.066	0.974	0.007
0.075	0	0.033333333	0.1	0	0.78	0.001	0.969	-0.003
0.075	-0.1	0.1	0.133333333	0	0.579	-0.169	0.904	-0.055
0.075	-0.2	0.166666667	0.166666667	0	0.437	-0.332	0.848	-0.116
0.075	-0.3	0.2	0.166666667	0	0.299	-0.476	0.76	-0.212

0.1	0.3	-0.166666667	0.1	0	0.758	0.009	0.968	-0.002
0.1	0.2	-0.1	0.108333333	0	0.798	0.018	0.975	-0.002
0.1	0.1	-0.033333333	0.166666667	0	0.726	0	0.954	-0.02
0.1	0	0.033333333	0.166666667	0	0.686	-0.058	0.928	-0.04
0.1	-0.1	0.1	0.2	0	0.542	-0.221	0.869	-0.101
0.1	-0.2	0.133333333	0.2	0	0.481	-0.267	0.799	-0.172
0.1	-0.3	0.2	0.208333333	0	0.407	-0.349	0.749	-0.221
0.2	0.3	-0.033333333	0.266666667	0	0.646	-0.104	0.888	-0.093
0.2	0.2	0	0.266666667	0	0.592	-0.167	0.868	-0.102
0.2	0.1	0.033333333	0.3	0	0.572	-0.178	0.821	-0.154
0.2	0	0.066666667	0.3	0	0.528	-0.244	0.808	-0.161
0.2	-0.1	0.066666667	0.3	0	0.531	-0.215	0.784	-0.191
0.2	-0.2	0.1	0.333333333	0	0.483	-0.29	0.73	-0.239
0.2	-0.3	0.1	0.333333333	0	0.474	-0.274	0.757	-0.202
(0.9, 0.9, 0.9, 0.9)								
0.025	0.3	-0.266666667	0.033333333	0	0.979	0	1	0
0.025	0.2	-0.2	0.033333333	0	0.979	0	0.999	0
0.025	0.1	-0.1	0	0	0.985	0	1	0
0.025	0	0	0	0	0.999	0.015	1	0
0.025	-0.1	0.1	0	0	0.812	-0.167	1	0
0.025	-0.2	0.2	0.033333333	0	0.557	-0.42	0.985	-0.015
0.025	-0.3	0.266666667	0.033333333	0	0.186	-0.794	0.941	-0.058
0.05	0.3	-0.233333333	0.033333333	0	0.985	-0.001	0.999	-0.001
0.05	0.2	-0.166666667	0.033333333	0	0.979	0.001	1	0
0.05	0.1	-0.066666667	0.066666667	0	0.981	0.004	1	0
0.05	0	0	0.033333333	0	0.989	0.002	1	0
0.05	-0.1	0.1	0.066666667	0	0.882	-0.094	1	0
0.05	-0.2	0.166666667	0.066666667	0	0.671	-0.306	0.994	-0.004
0.05	-0.3	0.233333333	0.066666667	0	0.353	-0.626	0.971	-0.028
0.075	0.3	-0.2	0.1	0	0.974	0	0.999	0
0.075	0.2	-0.1	0.1	0	0.971	0	0.998	0
0.075	0.1	-0.033333333	0.1	0	0.982	-0.002	1	0
0.075	0	0	0.1	0	0.955	-0.027	0.999	-0.001
0.075	-0.1	0.066666667	0.1	0	0.839	-0.132	0.996	-0.004
0.075	-0.2	0.133333333	0.133333333	0	0.738	-0.244	0.979	-0.021
0.075	-0.3	0.166666667	0.166666667	0	0.587	-0.394	0.968	-0.032
0.1	0.3	-0.133333333	0.133333333	0	0.977	0.001	1	0
0.1	0.2	-0.066666667	0.133333333	0	0.973	-0.006	0.999	0
0.1	0.1	-0.033333333	0.133333333	0	0.963	-0.021	0.998	-0.001
0.1	0	0.033333333	0.133333333	0	0.908	-0.074	0.996	-0.003
0.1	-0.1	0.066666667	0.166666667	0	0.805	-0.173	0.981	-0.019
0.1	-0.2	0.1	0.166666667	0	0.747	-0.235	0.975	-0.025
0.1	-0.3	0.133333333	0.2	0	0.623	-0.35	0.937	-0.062

0.2	0.3	-0.033333333	0.166666667	0	0.888	-0.09	0.978	-0.02	
0.2	0.2		0	0.233333333	0	0.844	-0.135	0.972	-0.026
0.2	0.1		0	0.2	0	0.864	-0.122	0.972	-0.028
0.2	0	0.033333333	0.233333333	0	0.796	-0.18	0.969	-0.03	
0.2	-0.1	0.033333333	0.233333333	0	0.776	-0.194	0.949	-0.051	
0.2	-0.2	0.066666667	0.233333333	0	0.761	-0.223	0.949	-0.051	
0.2	-0.3	0.066666667	0.233333333	0	0.748	-0.228	0.944	-0.053	
(0.1, 0.1, 0.1, 0.1)									
0.025	0.3	-0.233333333	0.033333333	0	0.994	0.994	0.994	0.994	
0.025	0.2		-0.1	0.066666667	0	0.993	0.993	0.993	0.993
0.025	0.1	0.033333333		0.1	0	0.992	0.992	0.992	0.992
0.025	0	0.166666667	0.133333333	0	0.994	0.994	0.994	0.994	
0.025	-0.1	0.333333333		0.2	0	0.99	0.99	0.99	0.99
0.025	-0.2		0.5	0.266666667	0	0.99	0.99	0.99	0.99
0.025	-0.3	0.466666667		0.4	0	0.99	0.99	0.99	0.99
0.05	0.3	-0.166666667	0.333333333	0	0.994	0.994	0.993	0.993	
0.05	0.2		0	0.5	0	0.993	0.993	0.993	0.993
0.05	0.1		0.2	0.966666667	0	0.994	0.994	0.994	0.994
0.05	0	0.433333333	1.766666667	0	0.994	0.994	0.994	0.994	
0.05	-0.1	0.733333333	3.608333333	0	0.991	0.991	0.991	0.991	
0.05	-0.2		1.1	11.4	0	0.993	0.993	0.993	0.993
0.05	-0.3	-6.966666667	25.93333333	0	0.991	0.991	0.991	0.991	
0.075	0.3		0.1	2.066666667	0	0.991	0.991	0.991	0.991
0.075	0.2		0.5	17.86666667	0	0.991	0.991	0.991	0.991
0.075	0.1		-3.5	6.75	0	0.992	0.992	0.992	0.992
0.075	0	-3.266666667		6.7	0	0.992	0.992	0.992	0.992
0.075	-0.1	-3.266666667		7.6	0	0.988	0.988	0.988	0.988
0.075	-0.2	-3.266666667	8.233333333	0	0.993	0.993	0.993	0.993	
0.075	-0.3		-6	6.866666667	0	0.991	0.991	0.991	0.991
0.1	0.3	-2.133333333	3.741666667	0	0.991	0.991	0.991	0.991	
0.1	0.2	-2.133333333	3.958333333	0	0.991	0.991	0.991	0.991	
0.1	0.1	-3.633333333		3.975	0	0.995	0.995	0.995	0.995
0.1	0	-3.633333333		3.8	0	0.984	0.984	0.984	0.984
0.1	-0.1	-3.633333333		2.5	0	0.992	0.992	0.992	0.992
0.1	-0.2	-3.633333333	2.583333333	0	0.995	0.995	0.995	0.995	
0.1	-0.3	-3.966666667	2.666666667	0	0.992	0.992	0.992	0.992	
0.2	0.3	-1.633333333	0.766666667	0	0.992	0.992	0.992	0.992	
0.2	0.2	-1.633333333	0.766666667	0	0.992	0.992	0.99	0.99	
0.2	0.1	-1.633333333	0.766666667	0	0.996	0.996	0.995	0.995	
0.2	0	-1.633333333	0.766666667	0	0.991	0.991	0.991	0.991	
0.2	-0.1	-1.633333333	0.766666667	0	0.992	0.992	0.989	0.989	
0.2	-0.2	-1.466666667	0.766666667	0	0.993	0.993	0.993	0.993	
0.2	-0.3	-1.633333333	0.766666667	0	0.996	0.996	0.994	0.994	

(0.5, 0.5, 0.5, 0.5)

0.025	0.3	-0.3	0.033333333	0	0.296	0.149	0.55	0.02
0.025	0.2	-0.2	0.033333333	0	0.505	0.356	0.627	0.074
0.025	0.1	-0.1	0.033333333	0	0.802	0.654	0.703	0.166
0.025	0	0	0.033333333	0	0.971	0.826	0.984	0.408
0.025	-0.1	0.1	0.033333333	0	0.868	0.725	0.816	0.276
0.025	-0.2	0.2	0.066666667	0	0.859	0.718	0.614	0.091
0.025	-0.3	0.3	0.066666667	0	0.837	0.674	0.472	-0.09
0.05	0.3	-0.266666667	0.033333333	0	0.357	0.214	0.532	0.023
0.05	0.2	-0.166666667	0.066666667	0	0.642	0.499	0.615	0.096
0.05	0.1	-0.066666667	0.066666667	0	0.907	0.755	0.788	0.247
0.05	0	0.033333333	0.066666667	0	0.903	0.752	0.871	0.351
0.05	-0.1	0.133333333	0.133333333	0	0.864	0.714	0.741	0.201
0.05	-0.2	0.2	0.133333333	0	0.855	0.71	0.588	0.04
0.05	-0.3	0.3	0.2	0	0.838	0.675	0.519	-0.02
0.075	0.3	-0.2	0.1	0	0.478	0.345	0.592	0.057
0.075	0.2	-0.1	0.1	0	0.747	0.613	0.68	0.159
0.075	0.1	-0.033333333	0.166666667	0	0.858	0.721	0.767	0.221
0.075	0	0.066666667	0.166666667	0	0.864	0.703	0.763	0.205
0.075	-0.1	0.133333333	0.266666667	0	0.861	0.715	0.662	0.114
0.075	-0.2	0.2	0.266666667	0	0.851	0.695	0.608	0.08
0.075	-0.3	0.266666667	0.333333333	0	0.86	0.719	0.551	0.011
0.1	0.3	-0.133333333	0.166666667	0	0.611	0.469	0.66	0.12
0.1	0.2	-0.066666667	0.2	0	0.789	0.633	0.677	0.153
0.1	0.1	0	0.266666667	0	0.837	0.694	0.65	0.123
0.1	0	0.1	0.333333333	0	0.847	0.689	0.627	0.081
0.1	-0.1	0.166666667	0.333333333	0	0.821	0.644	0.612	0.045
0.1	-0.2	0.233333333	0.366666667	0	0.856	0.721	0.561	0.021
0.1	-0.3	0.266666667	0.5	0	0.859	0.72	0.553	0.025
0.2	0.3	0.033333333	0.5	0	0.716	0.574	0.581	0.056
0.2	0.2	0.1	0.566666667	0	0.778	0.627	0.539	0
0.2	0.1	0.133333333	0.633333333	0	0.764	0.607	0.561	0.027
0.2	0	0.133333333	0.575	0	0.762	0.616	0.548	0.019
0.2	-0.1	0.2	0.666666667	0	0.783	0.643	0.531	-0.015
0.2	-0.2	0.2	0.7	0	0.765	0.603	0.536	0.011
0.2	-0.3	0.233333333	0.666666667	0	0.803	0.664	0.521	-0.002

(0.1, 0.9, 0.9, 0.9)

0.025	0.3	-0.3	0.033333333	0	0.798	0	0.98	0
0.025	0.2	-0.2	0	0	0.805	0.008	0.974	0
0.025	0.1	-0.1	0	0	0.857	0.062	0.98	0.003
0.025	0	0	0	0	0.988	0.208	0.995	0.018
0.025	-0.1	0.1	0	0	0.547	-0.269	0.969	-0.013
0.025	-0.2	0.2	0.033333333	0	0.334	-0.427	0.83	-0.142

0.025	-0.3	0.3	0.033333333	0	0.215	-0.579	0.618	-0.361
0.05	0.3	-0.266666667	0.033333333	0	0.797	-0.001	0.97	-0.001
0.05	0.2	-0.166666667	0.033333333	0	0.808	0.018	0.97	0
0.05	0.1	-0.066666667	0.033333333	0	0.887	0.074	0.982	0.003
0.05	0	0	0.033333333	0	0.909	0.118	0.983	0.011
0.05	-0.1	0.1	0.066666667	0	0.608	-0.204	0.965	-0.015
0.05	-0.2	0.166666667	0.066666667	0	0.324	-0.504	0.886	-0.097
0.05	-0.3	0.266666667	0.1	0	0.238	-0.565	0.725	-0.252
0.075	0.3	-0.2	0.066666667	0	0.794	0.002	0.973	0
0.075	0.2	-0.133333333	0.066666667	0	0.855	0.024	0.98	0.001
0.075	0.1	-0.066666667	0.1	0	0.861	0.049	0.983	-0.001
0.075	0	0.033333333	0.1	0	0.811	-0.005	0.966	-0.007
0.075	-0.1	0.1	0.1	0	0.62	-0.168	0.946	-0.027
0.075	-0.2	0.166666667	0.133333333	0	0.405	-0.41	0.865	-0.118
0.075	-0.3	0.233333333	0.166666667	0	0.281	-0.537	0.79	-0.187
0.1	0.3	-0.166666667	0.1	0	0.821	0.014	0.98	-0.001
0.1	0.2	-0.1	0.1	0	0.828	0.036	0.977	-0.001
0.1	0.1	-0.033333333	0.133333333	0	0.781	-0.026	0.979	-0.007
0.1	0	0.033333333	0.133333333	0	0.694	-0.096	0.945	-0.031
0.1	-0.1	0.1	0.166666667	0	0.554	-0.252	0.905	-0.064
0.1	-0.2	0.133333333	0.166666667	0	0.47	-0.33	0.841	-0.142
0.1	-0.3	0.166666667	0.2	0	0.387	-0.416	0.782	-0.201
0.2	0.3	-0.033333333	0.233333333	0	0.68	-0.116	0.907	-0.073
0.2	0.2	0	0.233333333	0	0.64	-0.181	0.895	-0.081
0.2	0.1	0.033333333	0.266666667	0	0.604	-0.177	0.88	-0.101
0.2	0	0.066666667	0.275	0	0.561	-0.244	0.84	-0.143
0.2	-0.1	0.083333333	0.3	0	0.526	-0.281	0.803	-0.17
0.2	-0.2	0.1	0.3	0	0.544	-0.247	0.793	-0.181
0.2	-0.3	0.1	0.3	0	0.5	-0.288	0.785	-0.186
(0.5, 0.5, 0.5, 0.9)								
0.025	0.3	-0.3	0	0	0.465	0.018	0.827	0.001
0.025	0.2	-0.2	0	0	0.538	0.074	0.881	0.004
0.025	0.1	-0.1	0	0	0.717	0.277	0.88	0.032
0.025	0	0	0	0	0.976	0.53	0.989	0.143
0.025	-0.1	0.1	0	0	0.667	0.246	0.855	0.022
0.025	-0.2	0.2	0	0	0.561	0.106	0.607	-0.256
0.025	-0.3	0.3	0.033333333	0	0.521	0.04	0.345	-0.532
0.05	0.3	-0.266666667	0.033333333	0	0.507	0.025	0.861	0
0.05	0.2	-0.166666667	0.066666667	0	0.599	0.137	0.872	0.013
0.05	0.1	-0.066666667	0.066666667	0	0.813	0.372	0.898	0.047
0.05	0	0.033333333	0.066666667	0	0.872	0.394	0.924	0.075
0.05	-0.1	0.1	0.066666667	0	0.647	0.204	0.831	-0.005
0.05	-0.2	0.2	0.1	0	0.55	0.068	0.655	-0.198

0.05	-0.3	0.266666667	0.133333333	0	0.539	0.077	0.447	-0.395
0.075	0.3	-0.2	0.066666667	0	0.524	0.06	0.868	0.003
0.075	0.2	-0.133333333	0.1	0	0.661	0.193	0.871	0.01
0.075	0.1	-0.033333333	0.1	0	0.775	0.301	0.889	0.029
0.075	0	0.033333333	0.133333333	0	0.751	0.283	0.856	0.025
0.075	-0.1	0.1	0.166666667	0	0.637	0.178	0.767	-0.098
0.075	-0.2	0.166666667	0.166666667	0	0.58	0.123	0.637	-0.199
0.075	-0.3	0.233333333	0.2	0	0.55	0.081	0.515	-0.328
0.1	0.3	-0.166666667	0.133333333	0	0.566	0.13	0.858	0.004
0.1	0.2	-0.1	0.166666667	0	0.687	0.21	0.861	0.012
0.1	0.1	0	0.2	0	0.677	0.188	0.844	-0.031
0.1	0	0.066666667	0.2	0	0.656	0.205	0.77	-0.062
0.1	-0.1	0.1	0.233333333	0	0.642	0.182	0.716	-0.125
0.1	-0.2	0.133333333	0.266666667	0	0.606	0.165	0.624	-0.216
0.1	-0.3	0.233333333	0.266666667	0	0.552	0.087	0.505	-0.351
0.2	0.3	0	0.3	0	0.56	0.093	0.751	-0.109
0.2	0.2	0	0.333333333	0	0.576	0.09	0.71	-0.158
0.2	0.1	0.066666667	0.366666667	0	0.56	0.085	0.656	-0.181
0.2	0	0.1	0.366666667	0	0.564	0.101	0.633	-0.217
0.2	-0.1	0.1	0.366666667	0	0.559	0.08	0.623	-0.221
0.2	-0.2	0.133333333	0.466666667	0	0.531	0.072	0.583	-0.263
0.2	-0.3	0.166666667	0.466666667	0	0.56	0.091	0.57	-0.258

(0.1, 0.5, 0.5, 0.5)

0.025	0.3	-0.3	0	0	0.442	0.408	0.312	0.098
0.025	0.2	-0.2	0.033333333	0	0.752	0.732	0.518	0.324
0.025	0.1	-0.1	0.033333333	0	0.948	0.922	0.722	0.526
0.025	0	0	0.033333333	0	0.994	0.969	0.997	0.784
0.025	-0.1	0.1	0.033333333	0	0.966	0.931	0.892	0.679
0.025	-0.2	0.2	0.033333333	0	0.974	0.948	0.818	0.618
0.025	-0.3	0.3	0.066666667	0	0.978	0.956	0.796	0.59
0.05	0.3	-0.266666667	0.033333333	0	0.588	0.558	0.365	0.15
0.05	0.2	-0.166666667	0.066666667	0	0.845	0.821	0.604	0.404
0.05	0.1	-0.066666667	0.066666667	0	0.971	0.943	0.796	0.57
0.05	0	0.033333333	0.1	0	0.983	0.959	0.927	0.721
0.05	-0.1	0.133333333	0.133333333	0	0.98	0.96	0.854	0.64
0.05	-0.2	0.233333333	0.133333333	0	0.971	0.942	0.825	0.631
0.05	-0.3	0.3	0.166666667	0	0.976	0.952	0.809	0.615
0.075	0.3	-0.2	0.1	0	0.694	0.662	0.452	0.247
0.075	0.2	-0.1	0.133333333	0	0.912	0.886	0.69	0.464
0.075	0.1	-0.033333333	0.166666667	0	0.984	0.967	0.802	0.593
0.075	0	0.066666667	0.233333333	0	0.975	0.948	0.857	0.644
0.075	-0.1	0.166666667	0.233333333	0	0.974	0.948	0.833	0.627
0.075	-0.2	0.266666667	0.3	0	0.973	0.946	0.807	0.603

0.075	-0.3	0.333333333	0.366666667	0	0.977	0.954	0.808	0.605
0.1	0.3	-0.166666667	0.166666667	0	0.819	0.782	0.561	0.357
0.1	0.2	-0.066666667	0.233333333	0	0.937	0.918	0.73	0.544
0.1	0.1	0.033333333	0.3	0	0.966	0.941	0.795	0.587
0.1	0	0.133333333	0.333333333	0	0.966	0.937	0.776	0.567
0.1	-0.1	0.2	0.4	0	0.973	0.947	0.788	0.582
0.1	-0.2	0.3	0.466666667	0	0.961	0.922	0.816	0.632
0.1	-0.3	0.333333333	0.541666667	0	0.975	0.95	0.804	0.609
0.2	0.3	0.033333333	0.6	0	0.898	0.884	0.647	0.451
0.2	0.2	0.1	0.666666667	0	0.907	0.881	0.677	0.483
0.2	0.1	0.166666667	0.8	0	0.927	0.897	0.708	0.507
0.2	0	0.133333333	0.833333333	0	0.941	0.927	0.713	0.527
0.2	-0.1	0.233333333	0.9	0	0.952	0.926	0.731	0.545
0.2	-0.2	0.266666667	0.966666667	0	0.957	0.94	0.713	0.517
0.2	-0.3	0.266666667	0.9	0	0.939	0.918	0.698	0.491
(0.1, 0.1, 0.1, 0.9)								
0.025	0.3	-0.3	0	0	0.699	0.696	0.358	0.314
0.025	0.2	-0.2	0	0	0.894	0.893	0.623	0.574
0.025	0.1	-0.1	0	0	0.978	0.977	0.887	0.84
0.025	0	0	0	0	1	0.997	1	0.948
0.025	-0.1	0.1	0	0	0.998	0.996	0.978	0.936
0.025	-0.2	0.2	0	0	0.997	0.994	0.952	0.902
0.025	-0.3	0.3	0.033333333	0	1	1	0.945	0.89
0.05	0.3	-0.3	0.033333333	0	0.759	0.755	0.386	0.33
0.05	0.2	-0.2	0.033333333	0	0.942	0.938	0.683	0.637
0.05	0.1	-0.066666667	0.033333333	0	0.984	0.979	0.87	0.81
0.05	0	0.033333333	0.033333333	0	0.998	0.994	0.993	0.944
0.05	-0.1	0.133333333	0.066666667	0	0.997	0.994	0.958	0.901
0.05	-0.2	0.233333333	0.066666667	0	0.994	0.988	0.946	0.889
0.05	-0.3	0.333333333	0.066666667	0	0.998	0.996	0.949	0.898
0.075	0.3	-0.266666667	0.066666667	0	0.802	0.802	0.44	0.391
0.075	0.2	-0.166666667	0.066666667	0	0.957	0.953	0.745	0.69
0.075	0.1	-0.066666667	0.1	0	0.996	0.994	0.913	0.874
0.075	0	0.033333333	0.1	0	0.995	0.99	0.977	0.926
0.075	-0.1	0.166666667	0.133333333	0	0.998	0.996	0.962	0.916
0.075	-0.2	0.266666667	0.133333333	0	0.998	0.996	0.944	0.887
0.075	-0.3	0.366666667	0.166666667	0	0.997	0.994	0.951	0.902
0.1	0.3	-0.233333333	0.066666667	0	0.88	0.878	0.586	0.533
0.1	0.2	-0.133333333	0.1	0	0.974	0.972	0.784	0.729
0.1	0.1	-0.033333333	0.166666667	0	0.993	0.987	0.913	0.857
0.1	0	0.1	0.166666667	0	0.999	0.999	0.968	0.919
0.1	-0.1	0.2	0.233333333	0	0.997	0.994	0.951	0.897
0.1	-0.2	0.3	0.266666667	0	0.996	0.992	0.956	0.91

0.1 -0.3	0.4	0.333333333	0	0.996	0.992	0.945	0.889
0.2 0.3	-0.033333333	0.466666667	0	0.949	0.947	0.761	0.721
0.2 0.2	0.1	0.6	0	0.977	0.973	0.848	0.803
0.2 0.1	0.2	0.733333333	0	0.989	0.984	0.881	0.821
0.2 0	0.233333333	0.9	0	0.996	0.993	0.909	0.859
0.2 -0.1	0.366666667	1.066666667	0	0.992	0.986	0.921	0.873
0.2 -0.2	0.4	1.166666667	0	0.999	0.998	0.928	0.88
0.2 -0.3	0.416666667	1.266666667	0	0.997	0.994	0.932	0.882