Newsletter

Operations Research Society of South Africa
Operasionele Navorsingsvereniging van Suid-Afrika

December 2008
www.orssa.org.za

SECOND CALL FOR PAPERS

NATIONAL CONFERENCE OF THE OPERATIONS RESEARCH SOCIETY OF SOUTH AFRICA

University of Stellenbosch
20–23 September 2009

We are pleased to give second notice of the 38th Annual Conference of the Operations Research Society of South Africa (ORSSA) to be held at the Stellenbosch Institute of Advanced Study on the main campus of Stellenbosch University. During this conference we shall celebrate the 40th anniversary of ORSSA. Full details of the meeting, including a preliminary programme, are available on the conference website:

www.orssaconf.co.za

Keynote speakers: Professor John J. Bartholdi, III
Manhattan Associates Professor of Supply Chain Management
School of Industrial & Systems Engineering
Georgia Institute of Technology, Atlanta

Please make a note of the following important dates:

Monday 2 March 2009:	**Online Registration and Abstract Submission Opens**
Friday 31 July 2009:	**Deadline for Abstract Submission**
Tuesday 30 June 2009:	**Deadline for Early-bird Registration**
Tuesday 15 September 2009:	**Last day of Registration**
Sunday 20 September 2009:	**Welcome Reception**
Monday 21 September 2009:	**Start of Conference**

Registration and abstract submission may be done on the conference website.

FROM THE EDITOR

Basie Kok

Welcome to the end of year edition of the ORSSA newsletter. This will unfortunately be my final issue as editor of this publication, and I would like to take this opportunity to thank all my contributors over the last two years for making my job as editor as enjoyable and fulfilling as it has proved to be.

I have learnt an enormous amount about the wonderful world of OR in the process, and have grown even more enthusiastic about the field in the process.

My replacement, Mr. Zane Simpson, whom I interviewed in the September issue this year is an incredibly enthusiastic and passionate OR personality and I am more than comfortable leaving him in charge of our society's newsletter. Zane has worked closely with me on the last two issues of this year and I am looking forward to what will be produced in the new year!

We kick off this issue with our "*Off the presidents desk*" column, where Sarma Yadavalli sends out his end of year message. As per usual I have also published the official presidential report for 2008, which summarizes the comings and goings of our society over the last 12 months.

I was once again spoiled by the quality of the contributions for this issue. Our main article, written by Adri van der Merwe showcases the development of a decision support system for a wine cellar. The article showcases an interesting problem which arises when grapes from multiple producers arrive at a central winery, and how both the harvest schedule, and the internal workings of the cellar, need to be optimized by means of job shop techniques and meta-heuristics.

Our member profile for this issue is of Lieschen Venter. I have only recently become acquainted with Miss Venter, but from what I can gather she is very passionate about the field of OR, and has huge potential to become a great OR practitioner.

One of our societies greats, Mr Hans Ittmann has once again provided a book review, this time of a book entitled "*Socrates & the Fox*" by Clem Sunter, one of the keynote speakers at the recent IFORS conference. I was fortunate enough to attend Mr Sunters IFORS address and was notably impressed with what I heard. This is the main reason I asked Hans if he would have a chance to review the book. As an outgoing editor I would specifically like to mention Hans as an outstanding ambassador for OR. His willingness to contribute to our publication, despite his ridiculous schedule continues to amaze me.

I hope the upcoming holiday season allows for a well deserved rest for all our hard working readers, and I trust you will all be back in the new year refreshed and ready to tackle the challenges which face our country and continent.

Features

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FROM THE PRESIDENT'S DESK

by Sarma Yadavalli (yadavalli@postino.up.ac.za)
ORSSA President

Sarma Yadavalli

Hello everyone, I cannot believe that we are close to the end of 2008. The year 2008 was a wonderful year for all Operations Researchers in South Africa. ORSSA should be proud of making this year a successful one, and for proving their ability to host an international conference of the highest standard, IFORS 2008.

The Local Organizing Committee of IFORS 2008 had its final meeting on 12 November 2008 at the CSIR. We are happy to announce that the conference made a marginal profit, from which ORSSA has also benefitted. I thank some of our members once again, Hans Ittmann, Dave Evans, Martie Harmse, Ozias Ncube and Theo Stylianides for their commitment to the Local Organizing Committee of the IFORS. The profit would not have been possible without the support of our sponsors, particularly, the Department of Science and Technology, Statistics South Africa, the University of South Africa (particularly, the Department of Decision Sciences), the Development Bank of Southern Africa, SAS Institute, CSIR and NRF. On behalf of ORSSA, I sincerely thank all our sponsors. I gratefully acknowledge the hard work of African Conferences Incentives (ACI) who were responsible for organizing of the conference locally.

At the last AGM held on 17 July 2008 during the IFORS 2008 conference, a new committee was elected. I am pleased to see some of the new young members coming forward to volunteer their services to the Society by joining the committee. This is a good sign.

However, with much regret, I note that Prof Wim Gevers will be departing from the committee from next year. Wim had worked selflessly and tirelessly for the Society over the past few years, as President, Vice-President, Treasurer, Secretary and in other positions. On behalf of the Society, I would like to thank Wim for his invaluable service and to wish him all the best in his future endeavours. The ORSSA regrets the departure of Dr Johan Joubert from the executive committee. Johan, we thank you for your support and services during your stay in the committee.

The goal of the Executive Committee of ORSSA in the coming year is simply that: to promote Operations Research, Management Science and Decision Sciences in South Africa. To achieve it, I sincerely encourage all that we must plan a full program of activities for the year by various Chapters of ORSSA.

Good bye to 2008, and I wish all of you a merry Christmas and a happy new year.

ICOR 2009 : "International Conference on Operations Research"

Penang, Malaysia
February 25-27, 2009

The International Conference on Operations Research (ICOR 2009) aims to bring together researchers, scientists, engineers, and scholar students to exchange and share their experiences, new ideas, and research results about all aspects of Operations Research, and discuss the practical challenges encountered and the solutions adopted.

Important Dates

Paper submission	November 25, 2008
Notification of acceptance	November 30, 2008
Final paper submission and authors' registration	December 31, 2008
Conference Dates	February 25-27, 2009

For more information please visit the conference website:

http://www.waset.org/wcset09/penang/icor/

MEMBER INTERVIEW: LIESCHEN VENTER

by Basie Kok (bkok@dip.sun.ac.za)

Lieschen Venter

I have recently had the pleasure of getting to know Lieschen Venter as am adventurous and passionate Operations Researcher. Lieschen hails from Somerset West, in the Western Cape, and enrolled for undergraduate studies in Mathematical Sciences at the University of Stellenbosch in 2003. After completing her undergraduate studies in 2006, she went on to complete an HonsBComm-degree in Operations Research in 2007.

Lieschen has recently become a member of ORSSA and attended IFORS this year along with a contingent from her university.

You are currently pursuing post graduate studies in OR. What led you to this decision instead of going directly into the workplace, and would you recommend this to other aspiring OR practitioners?

I was seriously considering starting my career in 2008, but I was awarded an outstanding bursary by Sasol. This, combined with a topic which really sparked my interest, as well as the opportunity to work with a great supervisor, prof SE Visagie, made the decision almost a given. I would definitely recommend further study for someone whose heart is for pure operations research and the OR-community. I've been very privileged to attend IFORS and ORSSA conferences, attend AGM's, typeset articles for ORiON, and meet some of the pillars of the discipline. I truly believe none of this would have been possible had I not continued post grad studies.

Do you have a specific role-model or someone you look up to in the field, and what do you admire most about their work?

We at the US are beyond spoilt with the excellent group of operations researchers in the Department of Logistics. Each member of staff is extremely proficient in their various areas of interest within OR.
I have learnt a great deal from prof. Visagie. I admire the creative ways with which he approaches problems and the manner with which he can zoom out to see the bigger picture while wielding mathematics as a practical tool rather than just a collection of theoretical concepts. His interpersonal skills are a treasure and I have gained many ideas from him should I consider a career as a lecturer.
As is the case with most of my fellow post-grad students, another great name which springs to mind is prof. JH van Vuuren, head of Operations Research at the University of Stellenbosch. I completed two applied maths courses as well as an honours course under his guidance, one being cryptology, and I remember thinking he was John Nash incarnate. Prof. van Vuuren's CV reads like the Great American Novel and his achievements are astounding. I admire his dedication to perfection. Where he walks, there is improvement and progress. And his dedication towards his students is beyond measure.

How did you originally get involved with ORSSA, and how long have you been a member?

Professor Visagie suggested I become a member of ORSSA during my honours study in 2007. I was then extremely privileged to present at the conference held at UCT that year. I have been a member for two years now, but hope to have a long future with the Society.

What facets of ORSSA do you enjoy the most as a member?

Because OR is such a new discipline (having celebrated only its 50th year in 2008) and is fairly unfamiliar in South Africa, I love the way ORSSA connects otherwise isolated researchers throughout the country. It successfully fuses academics and practitioners in the industry so that research and application work together for mutual advancement. The very high standard at which ORiON is kept, makes it a truly credible source and one of the Society's most useful facets. I appreciate the manner in which ORSSA acts as a platform for networking and the manner in which it binds the community towards the goal of advancing operations research in South Africa.

What would your commentary be on the role of ORSSA in promoting OR in general, and how do you think the society is doing in terms of achieving this goal locally and internationally?

ORSSA exists primarily to further the interests of those engaged in Operations Research activities. It is continually involved in matters which concern operations researchers, such as drawing up guidelines for education, presenting short courses and marketing. It provides information to the public on the nature of OR and on various career opportunities.
I feel the Society is doing an outstanding job of achieving these goals. The professional manner in which the IFORS conference was hosted is testament of ORSSA's commitment to the promotion of international OR.
Furthermore, an exciting new development is the national student competition which is presented in conjunction with SAS. This serves as great inspiration to improved standards in academic OR and will produce excellent fruit in terms of national OR promotion.

Have you recently been involved in any interesting OR related projects, could you give some brief details?

I recently completed a course under guidance of professor Van Vuuren which had as its main focus the exposure of students to real world OR problems. The course was intense because of its thoroughness. *Every* aspect of solving industry

type problems was included in the course, from the correct administration of team meetings to the presentation of the solution deliverable.
Three problems were presented: The first was the management of the Keerom Dam near Worcester. The goal was to find a strategy for sluice control so that the farms which depend on the dam are best supplied with water whilst the amount of water that is lost from the dam's surface through evaporation is minimized.
The second problem involved designing an inventory control model for a company that produces corrugated cardboard boxes to the industry. The goal was to determine board dimensions as well as the optimal reorder point and quantity so that demand is met whilst off-cut waste is minimized.
The last problem focussed on the scheduling and assignment of tasks to printers in a company which prints on the packaging for various commercial products. The goal was to minimize the total production time by finding the optimal order of the set of various tasks.

What has been the most memorable OR event for you as an individual. (This could be reading an exceptional article, attending an exceptional talk or meeting an exceptional OR individual)?

I consider myself very lucky to have been able to attend the IFORS conference this year. The international exposure has broaden my paradigm of Operations Research immensely and it has ignited an excitement for the global influence of OR. I had the opportunity to meet amazing Operations Researchers and brought back with me great inspiration for my own post-grad work.

What are your dreams and aspirations as an OR practitioner in South Africa and how do you intend to go about fulfilling them with the challenging economic circumstances which lie ahead?

As I will be working for Sasol after completion of my studies, I look forward to finding the unique role OR plays in the petro-chemical industry and especially to the advantage of Sasol. Economic conditions indeed are tough. Circumstances are currently such that only the cutting edge and the streamlined will survive. As "the science of better" I believe OR is the key to this streamlining and this is in fact a very exciting time for the discipline. Its time to shine as the useful science it is, is dawning and soon its application will be on the lips of great executives everywhere.

Do you have a message for other young OR practitioners?

I definitely recommend combining mathematical sciences with any study in Operations Research. Being able to program is a great advantage and any introductory course in computer science will give you valuable skills. Because of the interdisciplinary nature of OR, it is easy to shy away from disciplines that intimidate you. Try to at least get a basic foundation of those disciplines though. I myself avoided anything statistical as much as I could, but found that I had to retrace my steps after discovering the exciting possibilities of simulation.

Senior Quantitative Analyst: Market Risk Model Validation

This is a vacancy that exists within the Risk Division of Nedbank Ltd.

Purpose of this role: To independently review and validate the following models:

- trading market risk
- investment risk
- counterparty credit risk
- operational risk,
- Asset/Liability Management(ALM)

Outputs required:

- Design effective process and procedures for the validation of market risk, counterparty credit risk, operational risk and ALM models
- Give input to the development and improvement of the bank's model validation policy
- Ensure that an effective process is in place to validate derivative pricing models
- Validate market risk measurement models including the stress-testing of these models
- Validate counterparty credit risk models including the stress-testing of these models
- Validate ALM models
- Validate operational risk models
- Design models and benchmarks to enhance the model validation process
- Liaise with model developers from business cluster labs in order to ensure an effective model validation process
- Ensure that the market risk, counterparty credit risk, and operational risk models conform to regulatory(ie Basel 2) requirements

Formal qualifications:

M. Sc or PhD in Mathematics, Statistics, Financial Maths, Engineering or Operations Research

Additional comments:

- Minimum 5 years in a quantitative role
- Good understanding of optimisation , Monte-Carlo simulation and stochastic process, combined with the ability to apply these in the real world
- Ability to program in C++, Matlab, or Visual Basic
- Understanding of the financial markets and financial products such as derivatives

Contact details: Interested applicants can e-mail their cv's to vusid@nedbank.co.za and if they require more information they are welcome to contact Vusi Dladla at (011) 294-3853.

A Decision Support System For A South African Winery

by Adri van der Merwe (adri@dip.sun.ac.za)

Project Background

In the extremely competitive wine industry, it is of the utmost importance for any winery to allocate its resources judiciously. Automated assistance in the form of decision support systems has therefore become very popular. The interesting OR and Logistics problems occurring at wineries have also led to the founding of the Wine Supply Chain Council (WSCC) which had its third successful meeting in Stellenbosch in July 2008. This international wine industry research network attempts to collaborate on issues in global wine supply chains. Members of the WSCC have been very successful in applying decision support technologies to assist their local wineries. Amongst these members, Simon Dunstall of the CSIRO has been working with Australian Orlando Wyndham Group since 2003 in order to achieve the shared supply network goal of maximizing the value that is realized from material and intellectual assets in the supply network [2]. Furthermore, Chilean member Sergio Maturana has been involved in a project where some crucial factors of the winemaking process, such as the reception and pressing capacities of a cellar, were studied by means of simulating the reception of grapes at the cellar [1]. Sergio, together with WSCC member Alejandro MacCawley, has also been involved in creating a practical tool for the scheduling of wine grape harvesting operations that adopts an optimization approach, taking into account both operation costs and grape quality [3]. The involvement of the CSIR with the WSCC led to the start of a South African project of creating a decision support system for a South African winery, thereby contributing to the goal of the WSCC.

Project Description

This project is undertaken by the author as a Masters study in Operations Research at the Department of Logistics, Stellenbosch University. It is ventured under supervision of Prof JH van Vuuren (Head of Operations Research, Stellenbosch University) and Dr FE van Dyk (CSIR, Built Environments), shown in Figure 1.

Figure 1: The group currently working on this project.

The focus of this project is on scheduling problems experienced at a typical South African co-operation, with Wamakersvallei Winery in Wellington as a special case study. A *co-operation* is a winery where all the grapes are received from producers as opposed to an *estate winery* where all grapes are grown by the winery itself. Each of the approximately 80 different suppliers of Wamakersvallei has a number of vineyards, each vineyard being further divided into blocks. A *block* may be regarded as a harvesting unit, since blocks are always harvested fully or not at all.

Viticultural maintenance is applied throughout the year to control the quality of grapes expected to be harvested. This process enables winemakers and viticulturists to classify the grapes according to quality before they enter the cellar, saving precious time during the busy harvesting period. During the peak harvesting season in February, it is especially important that a proper grape intake schedule is devised.

Currently the scheduling of grape intake at Wamakersvallei is performed manually by the winemakers, viticulturist and cellar manager. Their decisions are based on spreadsheets of data derived from samples of every vineyard block which are used to indicate the ripeness of the grapes, mainly determined by sugar levels. In order to remain within processing capacity at the cellar, they also consider the available space in the cellar compared to the expected yield of the vineyard block. A very broad overview of the winemaking processes that follow the scheduling of the harvest, is presented in Figure 2.

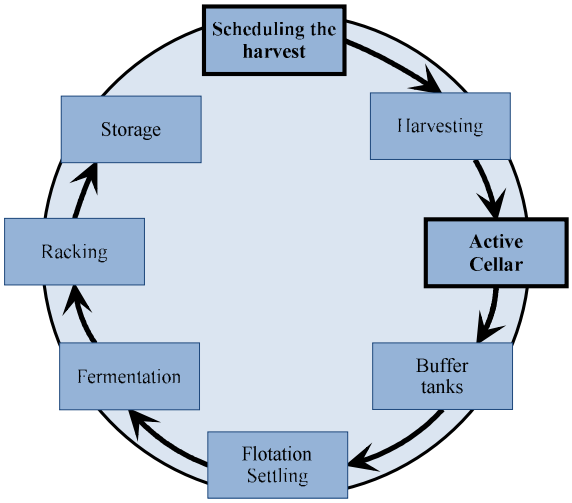

Figure 2: A broad overview of the winemaking process with the two scheduling problems in darker frames.

The main objective of this project is to design a decision support system capable of assisting the group of winemakers and viticulturist in drawing up a sensible schedule for grape

intake over a specified number of days. This objective is pursued by considering the same data and factors that are considered by the winemaking group. From Figure 2 it is clear that the scheduling of the harvest influences every other process at the cellar, directly or indirectly. However, the area in Figure 2 that is most influenced by the grape intake schedule, is the active cellar. If grapes from too many blocks are received in one day, a bottleneck will most likely occur in the active cellar. It is therefore important to design a harvesting schedule that is sensitive to processes and changes inside the active cellar. The problem of scheduling the intake of grape loads and their assignment to machinery in the active cellar, is referred to as the *cellar scheduling problem* from here on.

THE CELLAR SCHEDULING PROBLEM

Loads of grapes arrive at the winery where they are weighed and their quality and origin are documented, after which the processing of the grapes can start. Each load of grapes is then assigned to a tipping bin which serves as entry point to the active cellar. The winemaking process already starts inside the tipping bins and, depending on the grape cultivar or type of wine desired, the load of grapes may then be assigned to different sets of available processors. All of the processors are connected by means of permanent stainless steel pipes or temporary pipes that are easily moved between machines. To illustrate the connectivity between machines and also the machine sets of the active cellar, the notion of a *cellar graph* is introduced. In Figure 3, a simplified cellar graph of a small, hypothetical cellar is presented. The black numbered dots refer to machines. The circles are a means of representing the joining or splitting of routes that grape batches follow in the cellar, and do not refer to any physical aspect of the cellar. Arrows represent the possible routes (one arrow may in effect refer to more than one pipe). *Worms*, used to transport grape skins to the presses, are indicated by the dotted arrows.

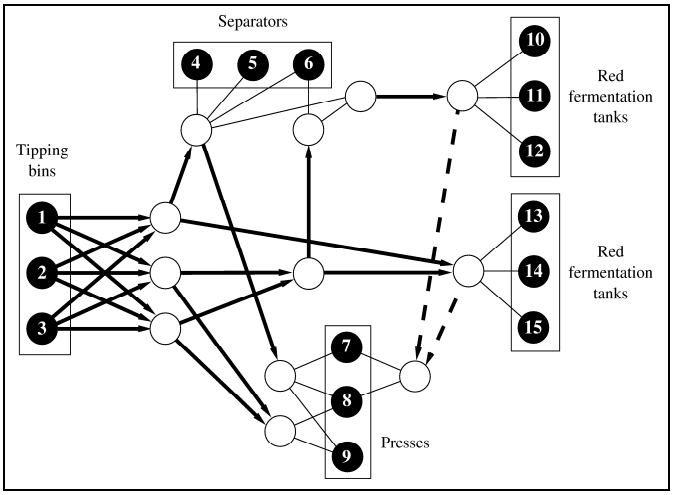

Figure 3: The cellar graph of the active part of a hypothetical cellar.

Each wine type requires a certain number of processes on a specific grape type. Each of these processes satisfies unique requirements and each set of processors has a unique set of characteristics. For example, after a load of Chardonnay enters the active cellar through the tipping bins, the process of separating skins and juice is required. This may be performed on either the *Separators*, in which case further skin contact is possible, or on the *Presses* in which case separation is performed as part of the pressing. Furthermore, a special requirement of the Separators, is that only one may be emptied at a time, since there is only one pipe connecting the set of separators to the presses (see Figure 3).

A simplified overview of the possible routes inside the active cellar, as well as the number of machines in each set of processors at Wamakersvallei, is presented in Figure 4. The approximated processing times are also listed. Not included in Figure 4, are the setup times required to clean machines between loads.

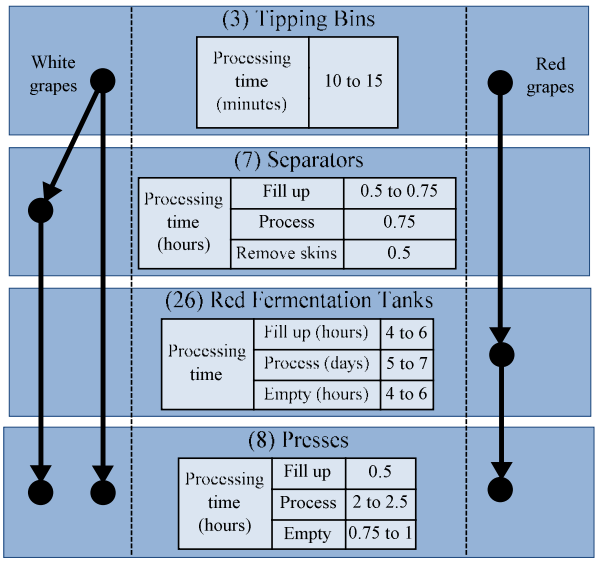

Figure 4: Two possibilities for the processing of white grapes and one for red grapes, together with the different processing times on each set of machines

The cellar scheduling problem may be considered as a flexible job shop (job shop with sets of parallel machines) where each load of grapes entering the cellar serves as a single job. A load of red grapes can remain in the active cellar for up to 7 days, only being handled on the last day (and the day of arrival). However, schedules are drawn up daily; therefore a load of red grapes is split into two jobs. Each job is then divided into tasks representing the different phases of processing. Each task should not only be assigned to a time slot (*i.e.* scheduled) but also to an allowable machine.

There are also further characteristics of the winemaking process that limits the assignment of tasks to a machine. One of the more trivial is that the tasks forming part of the same job should follow directly on one another (no-wait characteristic). There are also certain criteria allowing two loads of red grapes to be added together at fermentation, such as that the cultivar and quality should match and that they should have been received by the cellar within one day of one another.

Then there is also the matter of pipes that connect the machines. Two approaches were originally considered, one including pipe assignment and the other disregarding it. The latter was decided upon, since additional temporary pipes may be used and pipe assignment is therefore not as important as that of the correct assignment of grape batches to machines. By choosing to disregard pipe assignment, more constraints are placed on the scheduling of the grape loads

A mathematical programming model was built to solve the cellar scheduling problem. A variety of objective functions were considered with the eventual goal being to fit all the tasks into as short a time as possible (*i.e.* minimizing the makespan). The best results were achieved using a total completion time of the tasks (sum of all the completion times of each task). Consider applying the model to a small, hypothetical problem comprising seven jobs, as listed in Table 1, to be performed at the cellar shown in Figure 3. The first three jobs refer to loads of red grapes to be received, the next four to loads of white grapes to be received and the last (Merlot) refers to a red fermentation tank that should be emptied. A feasible cellar scheduling solution is presented in Figure 5.

This mathematical programming model may be used to verify current strategies at the cellar. For example, is it sensible for one tipping bin only to receive white grapes, another only red and the third mixed? Or, since setup times are required between red and white loads at the tipping bins, should the third tipping bin only accept white grapes in the morning and red grapes in the afternoon? However, the main objective in this project is to use the cellar scheduling problem as a micro scheduling framework in order to evaluate strategies in a bigger macro scheduling problem. This macro scheduling problem focuses on drawing up a schedule for the intake of grapes at the cellar and is referred to as the *harvest scheduling problem*.

J_j	Cultivar	Weight (tonnes)	Allowed red fermentation tanks
J_1	Cabernet Sauvignon	40	P_{12}
J_2	Cabernet Sauvignon	25	P_{12}
J_3	Pinotage	15	P_{11} and P_{12}
J_4	Chardonnay	40	
J_5	Chardonnay	30	
J_6	Sauvignon Blanc	20	
J_7	Merlot	50	P_{10}

Table 1: The details of the vineyard blocks to be harvested with the allowed red fermentation tanks determined by their current contents.

THE HARVEST SCHEDULING PROBLEM

A new sample of grapes from each block is taken at least every two weeks and it is from these samples that the sugar levels are recorded. Based on these sugar levels, grapes are graded into quality classes; each cultivar has its own sugar level intervals specifying the degree of ripeness. The objective of the harvesting schedule is thus to group the vineyard blocks in order for them to be harvested as close as possible to their optimal ripeness without causing intake bottlenecks in the active cellar.

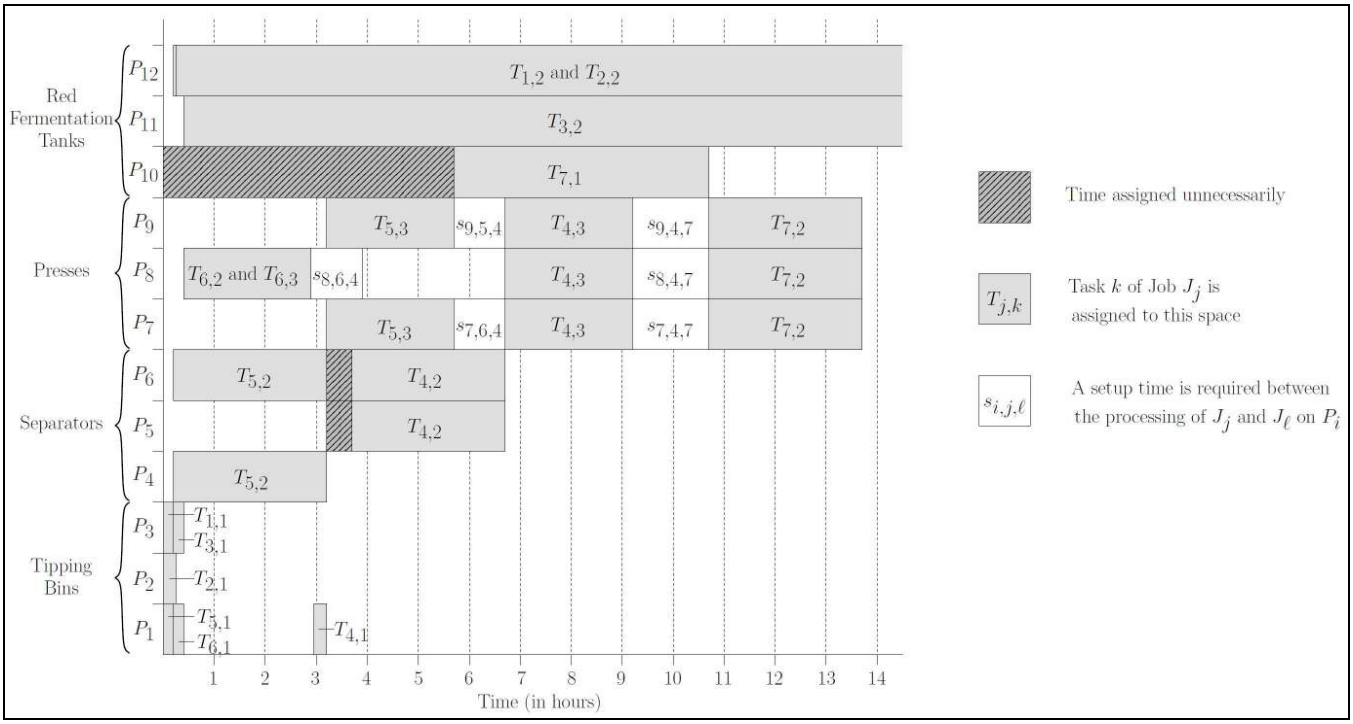

Figure 5: A Gantt chart representation of a feasible schedule for the processing of grape loads listed in Table 1 as processed in the cellar of Figure 3.

A tabu search is implemented to draw up a good harvesting schedule. The interaction between the micro and macro scheduling problems are presented in Figure 6. More specifically, it is shown in the figure how a possible solution to the harvest scheduling problem is evaluated in terms of the cellar scheduling problem. An *optimality score* is assigned to each candidate harvesting solution considered. This score combines the number of blocks harvested within their optimal sugar level interval with an additional *feasibility score* for each day presented in the solution. Such a feasibility score represents the likelihood that the amount of grapes scheduled for harvesting on that specific day will not result in any bottlenecks within the active cellar and hence is possible to process in one working day. The feasibility score is in turn also determined by another tabu search, by creating a feasible active cellar schedule for a number of different likely scenarios. In Figure 6, twenty-five scenarios are considered although the real heuristic will consider more.

There are three phases when creating the scenarios. First, the blocks are split into truckloads, since a large block is always delivered in parts. In Figure 6, five such splits are represented. A permutation is applied to this list of grape loads to determine the order in which they may arrive at the cellar. In Figure 6, each of the five splits are further divided into five different permutations, thereby creating 25 different scenarios. The third phase consists of assigning arrival times based on the actual distribution of truck arrivals at the winery. For each of the created scenarios, the tabu search attempts to find a feasible cellar schedule. There is no need for the solution to be near optimal. It should only be feasible with no bottlenecks and fitting into one working day. Then the scenario may be considered a successful one.

When completed, the models of the project will be delivered as a decision support system enabling the winemakers and viticulturist at Wamakersvallei Winery to save time and effort during the busy harvesting season.

References

[1] Auger A, Ferrer JC, Maturana S & Vera J, 2008, *Simulation of the Grape Reception at a Winery*, [Online], [cited 5 November 2008], Available at http://www.gepuc.cl/ publicaciones.html

[2] Dunstall S & Johnstone R, 2005, *Applying innovative decision support technologies to achieve harmony and adaptability in an Australian wine supply network*, Paper presented at the Smart 2005 Conference, Australia.

[3] Ferrer JC, Mac Cawley A, Maturana S, Toloza S & Vera J, 2008, *An optimization approach for scheduling wine grape harvest operations,* International Journal of Production Economics, **112**, pp. 985 – 999.

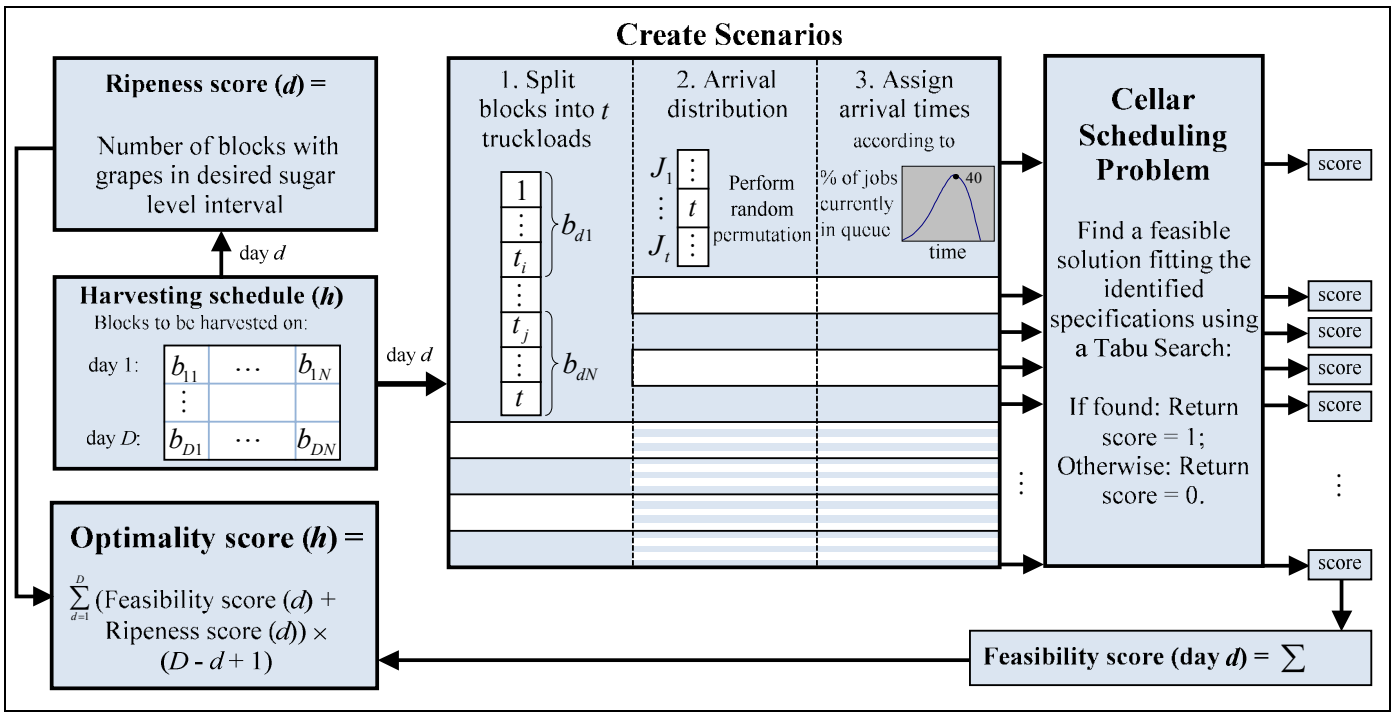

Figure 6: A graphical representation of the evaluation of one harvesting schedule (h) (possible solution to the harvest scheduling problem) by means of an optimality score created by applying the cellar scheduling problem.

ORSSA Presidential Report 2008

by Sarma Yadavalli (yadavalli@postino.up.ac.za)

These were the issues that the ORSSA executive dealt with.

IFORS 2008

ORSSA focussed mainly on the successful hosting of the IFORS2008 conference which is currently taking place. This was the main focal point of the executive this year. Some of the executive members, Marthi Harmse, Ozias Ncube and myself have served in the Local Organising Committee of the IFORS2008. One of our ORSSA members and a past president Hans Ittmann was the chairperson of this committee. All the above members had been very active in getting the sponsorships successfully. I personally wish to thank the major sponsors, Department of Science and Technology, Statistics South Africa, University of South Africa, National Research Foundation, Council for Scientific and Industrial Research, Development Bank of Southern Africa (Dave Evans in particular) and SAS. At this point a special word of thanks to Ozias Ncube and Professor Chris Swanepoel from UNISA for getting the sponsorship from UNISA. Also a special word of thanks to CSIR, and in particular to Hans Ittmann and Theo Stylianides for their continued support and participation in the LOC. Initial financial support for IFORS2008 was given by ORSSA as a show of our commitment to hosting this event, and we are proud of that. In this effort we are also thankful to the Pretoria and Johannesburg Chapters for financial support for the conference. Once again without the support of the above organisations the conference could have been different. I sincerely thank all of them once again.

Membership Fees

The executive deliberated thoroughly on the issue of membership fees in relation to the escalating costs of production of the ORSSA journal, ORiON, the Newsletter, and other related costs like postage etc. The executive left this issue to be discussed at the AGM. The treasurer will present the proposals.

ORSSA Website

Previously it was hosted by the Department of Applied Mathematics at University of Stellenbosch. Currently ORSSA members who were in this department have moved to the Logistics Department. In previous executive meetings, these members have indicated that there is no problem with the website to continue to be hosted through Applied Mathematics Department for the time being.

Student Competitions

There was only one submission for the Masters dissertation. The executive committee has expressed concern about this low number of submissions from ORSSA members working with students. I take this opportunity to encourage all the departments to submit their students' dissertations. Despite this low level of participation the executive committee recommended that the evaluation process should continue as normal.

ORSSA Journal and Newsletter

I sincerely thank the editors of ORiON (Prof Jan van Vuuren) and the Newsletter (Mr Basie Kok) together with their team for their tireless efforts to deliver them in time. The executive approved the inclusion of copies of ORiON and the Newsletter in the IFORS2008 conference bags for marketing and show casing the quality of research being done by members of ORSSA. It is important to note that the Department of Decision Sciences at UNISA moved these copies from Cape Town to the conference venue, and the executive sincerely thanks the department.

Most of the executive meetings were held via video conferencing through the facilitation of the Department of Decision Sciences at UNISA. Once again, we thank Chris Swanepoel and Ozias Ncube for their efforts in this facilitation both at Pretoria and Cape Town.

Lastly I want to sincerely thank each and every member of the executive committee for their commitment through out the year.

BOOK REVIEW

By Hans Ittmann hittmann@csir.co.za)

Socrates & the FOX by Chantell Ilbury and Clem Sunter, 2007, Human & Rousseau/Tafelberg, Cape Town, pp. 190. ISBN-10: 0-7981-4905-1. R150.

The request from the editor was very clear: "can you do a review on this specific book?". In the past I had the freedom to select which book I wanted to review, so this was a bit different. In addition, the request came a few months after IFORS 2008 where Clem Sunter was the keynote speaker at the opening session of the conference. Having heard Sunter again recently where he basically repeated the keynote address – with all the same jokes at the same places within the presentation, the typical Sunter way of expressing things, his characteristic laughter at his own jokes, etc. I was looking forward to a description of scenarios. Strange how one can have these preconceived ideas. The book turned out to be totally different, at least for me!

"You are a traitor and deserve to die. And it shall be by your own hand"; an intriguing way to start a book. It turns out this was the faith of Socrates, a philosopher in the Athenian Empire, 399 BC. Socrates was highly critical of the Empire and questioned its authority as well as their policies, decisions, strategies, etc. This he did through long discussions, dialogues and conversations with his students. It was a new approach to questioning many things from that era and in the process he caused a great deal of animosity within the ranks of the authorities. This led the authorities to sentence him to die and it had to happen through Socrates committing suicide!

Legend has it that just before his trial he needed time to think and so walked into nearby woods. He was thinking, looking for true wisdom he believed eluded him for so long when he became aware of the presence of a fox. The two of them started a dialogue or conversation. This dialogue between the two was about their individual "strategies" within the environment they live. For example one of the questions to the fox was: "What are the rules of the animal kingdom and how do they differ from those governing human society?". The response from the fox was: "Well, I can only speak for my world. The rule is simple and all-encompassing: you do lunch, or be lunch. Straight competition. Survival of the fittest". Socrates responded that the same rule exists in commerce and war. The dialogue continued in this vein but what is very interesting are the similarities that existed in both the world of the fox and of Socrates. Both played a "game" in life and followed various strategies in playing this game which assists and ensures that they ultimately survive in the world within which they operate. They both understood clearly what the rules were, where they were strong and weak, what strategies were that they needed to follow, where things were going to change in future, etc. etc. From this dialogue between the fox and Socrates a methodology was designed to assist companies to have an effective strategic conversation about their future. The rest of the book outlines this strategic conversation methodology that can be used for strategic planning.

For IIbury and Sunter, games and business have a lot in common. Both are subject to rules and both involve competing teams. The winner is usually the team with the greater skill and more effective strategy and tactics. A set of principles pertaining to strategy underpins their conversational model. Six principles define the game within which one is playing. This is the strategic part of the conversation. An additional four principles are used for playing the game and these define the tactics and outcomes an organisation wishes to achieve. A model, strategic framework or methodology was therefore established using the series of ten strategic questions through which participants are steered. We list these ten principles below and as can be seen in the table after the questions, 'defining the game' is really the strategic part of the discussion and 'playing the game' the tactics and outcomes you wish to achieve.

Defining the game

1. *How has the game in your industry changed, where is it heading and how have you fared as a player?* It is critical that one understands the environment within which a company or organisation operates and also what its "destiny line" i.e. where it comes from and where it is going in the future.

2. *What is your playing field today, and how do you want to expand (or contract) it in light of the developing context and the resources at your disposal?* The organisation needs to determine how big their involvement should be in the environment within which they are playing.

3. *Who are the players that can most advance or retard your strategy, and how should you handle them in future?* An in depth knowledge and understanding of competitors is essential, what their strategies are, where are the differentiators, etc.

4. *What are the rules of the game that are likely to govern your strategy under all scenarios?* A very important aspect in any strategy is the boundaries within which an organisation can operate.

5. *What are the key uncertainties that could have a significant impact on the game and divert your course either positively or negatively?* There are many uncertainties however the challenge is to identify those critical ones that will impact on the business and then also how to manage these.

6. *On your game board, what are the possible scenarios and where would you position yourself in relation to*

them now? Nobody can predict the future but one can define a number of scenarios and then plan how to alter the strategy given what scenario the organisation finds itself in.

Playing the game

7. *What are your strengths and weaknesses as a player, and what are the opportunities and threats offered by the game?* A proper SWOT analysis is needed and here it is absolutely necessary to be as objective and honest as possible.

8. *Within your span of control, what options do you have to improve your current performance and longer-term prospects in the game?* At this stage of the conversation all the background assessments has been done and one can look at the options available – many times the options are obvious at this point.

9. *Which options do you want to turn into decisions right now, and what is the initial action associated with each decision?* It is critical to turn options into decisions.

10. *What is your meaning of winning the game in five years' time, expressed as a set of measurable outcomes?* Winning has different meanings, for example, winning could imply making as much money as possible as quickly as possible or it could mean to be number one in the business sector for as long as possible. An organisation needs to clarify where it wants to be and how it is going to measure this. Defining key performance indicators could be very useful.

Each of these questions is discussed in detail in separate chapters. From their experience Ilbury and Sunter are able to elaborate on these, show the pitfalls, give advice on how things should be handled and many other aspects. Those that have attended strategy session will identify many familiar aspects although the authors clearly have many years of experience in conducting strategic conversations and this comes through throughout the book. At the end of each chapter they list a number of quotes from participants that have attended strategy sessions facilitated by the authors.

The book turned out to be totally different to what I anticipated. Nevertheless I found it very informative and I like the idea of a strategic conversation around strategy development and formulation.

EURO Doctoral Dissertation Award
EDDA 2009
Announcement

The EDDA (EURO Doctoral Dissertation Award) is a EURO instrument consisting in a prize that is awarded at each EURO-K conference. The purpose of the prize is to distinguish an outstanding PhD thesis in Operational Research defended in the countries having an OR society that is member of EURO. It will be awarded for the fourth time at the closing session of the EURO 2009 conference (Bonn, July 5–8, 2009).

Eligibility of applications

The EDDA 2009 jury will only consider PhD theses in Operational Research defended between *15 February 2007* (i.e., the deadline for the preceding edition of the prize) and *15 January 2009* (the deadline for the present edition). The dissertation should have been defended in a University located in a member country of EURO. The author of the dissertation should be a member of a member society of EURO. To be considered, *a dissertation should be nominated by the supervisor of the thesis* (one of them in case of multiple supervisors). The supervisor of the dissertation is asked to provide the jury with the following information:

1. The text of the dissertation,
2. An extended abstract (up to 5 pages) of the dissertation; this abstract should be written in English and should include *precise keywords*,
3. If the dissertation is not written in English, a paper in English authored (or co-authored) by the author of the dissertation and describing the core ideas of the thesis. This paper should preferably have been published in or submitted to an international journal.
4. Nomination letters (or reports) from two referees selected by the dissertation supervisor, supporting the submission and stating their assessment of why the thesis should win the award,
5. An up-to-date CV of the candidate, including a list of publications.

Award

The final winner will receive 1000 € and a certificate. The three finalists are granted the early registration fee at the EURO 2009 conference, at which they will register. EURO will also contribute to their travel and journey expenses.

Deadlines

The deadline for submitting applications is **15 January 2009**.
The nomination of the three finalists will be made public before **15 April 2009**.

Contact

All information should be sent to the chairman of the jury (Denis Bouyssou: `bouyssou@lamsade.dauphine.fr`) in electronic form using a compressed format to save space and bandwidth.

http://www.lamsade.dauphine.fr/~bouyssou/

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