

The Travel-Tour case study (due to P. Smets)

Description of the case

Travel-tour is a tour operator having two agencies, TRO1 and TRO2, located in the same city, Trouville. Agnes is a secretary attached to TRO1 agency. She has a temporary employment for many months and works part-time at TRO2, so that she has to move between the two agencies. These last months, the results of the TRO1 agency increase, as the ones of TRO2 agency stay stable, or even decrease. To foster TRO1 agency, the Regional Executive proposes to regularize the situation of Agnes with a firm employment and to affect her exclusively to TRO1 agency. Accordingly, Agnes will have a firm contract and be relieved to split her work in two parts, while the TRO1 Director will increase his staff with a full-time secretary at his disposal.

Surprisingly, each of them vigorously refuses the proposal and a deeper analysis reveals that they both have very good reasons to do so. Indeed, TRO2 agency is more inventive in designing new travel packages, while TRO1 agency has an efficient commercial staff; being aware of the TRO2's activity, Agnes provides information to the Director, allowing TRO1 to skillfully finalize the TRO2's ideas. As for Agnes, for personal reasons she has not as a short-time objective getting a steady job. Moreover, she is very cool in her working relations with the other employees of TRO1, and she greatly appreciates that none of the TRO1 and TRO2 directors has the possibility to exert a precise control on her work. Thus the change in the organization would increase the control of the director on Agnes's activities (what she does not wish) and the Director would lose his source about TRO2 (what he does not wish).

SocLab model of the case

Attempting to understand the behavior of the director and the secretary, we have to highlight the relations system existing between them. Each actor masters a resource: the director masters *the secretary's work*, and the secretary masters *the information about TRO2*.

The resource controlled by the director sets two relations: the first is to 'Renew the contract' of the secretary, i.e. the type of employment contract the director proposes to the secretary. The second relation, 'Control the work' focuses on the supervision that the director may exert on the secretary's activity. The resource controlled by the secretary sets one relation: to 'Give information'.

Additional field surveys suggest that the secretary is not very concerned neither by her employment stability (2 stakes points) nor the information diffusion (2 stake points). She looks for a control of her work as light as possible, that is her main concern (6 stakes points). The director is mainly concerned about the TRO2 information diffusion (7 stakes points), which is a vital necessity toward his goals. However, he cannot dissociate himself from the secretary's work supervision (2 stakes points). The secretary's employment stability is neglected by the director (1 stake point).

Table 1 shows a model of the structure of this organization intended to highlight the reasons for refusal. It includes only the two actors with the three relations, which would be drastically changed by the Regional Executive's proposal: the information given by the secretary (vanished), the control of the work by the Director (enhanced) and the contract's renewal (vanished). We just comment the shape of the effect functions of the 'Give information' relation. Positive values of the state of this relation correspond to the quantity and quality of information delivered by the Secretary, negative value to disinformation and null values to silence. For the Director, he will take full advantage of any positive information and would be greatly disturbed by false ones. For the Secretary the better is to talk about her work in the TRO2 agency in casual way (state = 2).

Giving more information is quite uncomfortable and she risks being detected, and giving false information even more.

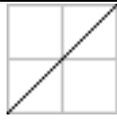
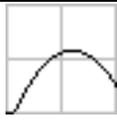
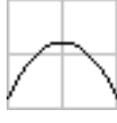
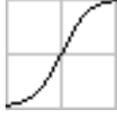
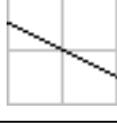
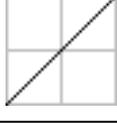
	Stakes		Effect functions	
	Director	Secretary	Director	Secretary
Give information	7.0	2.0		
Control the work	2.0	6.0		
Renew the contract	1.0	2.0		

Tableau 1. The stakes and the effect functions of the relations (in line) toward the actors (in columns). The functions' x-axis corresponds to the relation's state (i.e. the cooperativity of its controller actor), the y-axis to the effect on the actor of the relation being in this state.

Some results

Table 2 shows, for some indicative states of the organization, the state of relations and the resulting capability of actors. This organization shows the typical features of a Prisoners' Dilemma: for each actor, the better is to trust the other and to renounce to his self-reward in order to get, in return, the highest collaboration from the other.

	Maximum Capability			Worst Global	Simulation Results		
	Global	Director	Secretary		Value	Percentage	Deviation
Give information	10.0	10.0	2.0	-10.0	10.0		0.01
Control the work	7.0	0.0	10.0	-10.0	9.99		0.02
Renew the contract	10.0	-10.0	10.0	-10.0	1.68		9.72
Director	59.2	79.0	-7.0	-81.0	53.19	84.8 %	4.86
Secretary	65.1	-28.0	82.6	-97.8	53.19	83.7 %	19.42
Global	124	51.0	75.6	-178	106.38	94.1 %	

Tableau 2. In columns, the states corresponding to: the maximum capability of the whole organization and of each actor; the worst state; simulation results. In rows, the state of relations and the capabilities of actors.

The three right hand columns in Table 2 give the result of 300 simulations, with tenacity 4 for the Director and 6 for the Secretary (she is a bit more involved in the game), and discriminability 1 for both. All simulations have converged after 2 821 steps in average (minimum 409 and maximum 20 893). Both actors have a similar level of capability and the global capability is fulfilled at 94.1% of its maximum value. The states of the 'Give information' and 'Control the work' relations show that the two actors steadily cooperate (to the best of their respective benefice), and this explains why they do not want the change proposed by the Regional executive.

The deviation of the state of “Renew the contract” relation, which causes the deviation of the capability of both actors (specially the secretary), is high because of the small feedback toward the director that makes it difficult for him to evaluate the impact of his actions: the stakes and the effect functions’ amplitude are low.

Results analysis

This high deviation leads to look more precisely at the dispersion of the state of the “Renew the contract” relation. This relation is the matter of a structural conflict between the director and the secretary since their effect functions are in opposite directions. It appears that the values of the 'Renew the contract' relation's state is not uniformly distributed, on the contrary it features two well-delineated modes.

An ascending hierarchical classification characterizes the two modes to which the simulations converge. In most cases (58%), the director cooperates with the secretary and puts the relation in a cooperative state that is profitable to the secretary and not for him. While in the remaining cases (42%), he does not cooperate to his benefice and to the secretary's detriment. Table 3 shows the average value of the state of relations and of the capacities of actors for each mode. Figures 1 and 2 show the boxplots of relations and actors in both modes. The state of the 'Renew The Contract' relation controlled by the director alternates between these two modes without inside each mode. Thus, it appears that this organization can operate in two different modes that are not as egalitarian as the results shown in Table 2 could lead to believe, because the director does not succeed in putting the state of 'Renew The Contract' relation to the neutral value zero.

		Mode 1	Mode 2
Effectives		210	290
Average number of steps		3001	2690
Relations' States	Give Information	9,99	10
	Control The Work	9,97	10
	Renew The Contract	-9,81	10
Actors' Capacities	Director	58,96	49,02
	Secretary	30,19	69,84
	Global	89,15	118,86

Tableau 3. Average state of relations and actors' capability in both modes.

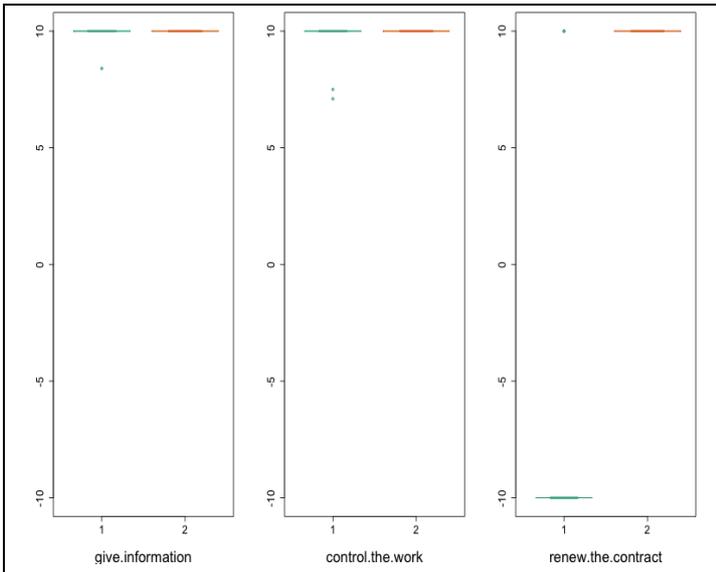


Figure 1. Boxplot of relations' states in mode 1 (to the left) and mode 2 (to the right).

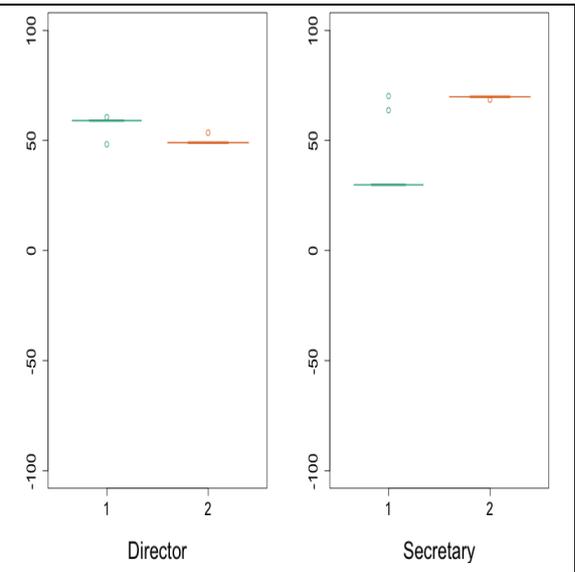


Figure 2. Boxplot of actors' capacities in mode 1 (to the left) and mode 2 (to the right).