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Confrontation and the rules of the game in product development - the micro processes

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Abstract

Observations from two car projects are analysed. Video-recordings of two sequences showing team members trying to use confrontation to make other members change their behaviour and pay more attention to the provision of current information on release status to colleagues. The problem is formulated against a background of decision quality and creativity which are assumed to improve with “programmed conflict”. Such a conflict is present almost by design when representatives of Production Control participate in decisions on design changes in late stages of the product development process. It is found that confrontation seems to be inconclusive, arguments in general in the observed projects seemed to be incomplete. This is probably because several contexts are mobilised when members of different specialities interpret what is meant by an argument. An alternative approach to analysis using a modernised version of Speech Act theory (Cooren 2000) is used. A new kind of polyphony is indicated.

Introduction

Organizations have many stabilisers, learning is one of them (Hedberg and Jönsson 1978). It is generally considered that conflict is detrimental to creativity while debate is good. Psychologists have made experiments to see if "programmed conflict" improves the quality of decisions, whether participants have been stimulated to learn (which is often defined as "critical evaluation of one's own assumptions" (Schweiger et al 1989)), and whether participants are willing to continue to work together with the other members of the group. Ekvall and co-workers (1983) have developed an instrument to measure work climate. In it they differentiate two types of tensions between people, emotional and intellectual. In the first case the two dislike each other, hurt each other, and show aggressiveness. In the other there are different opinions and there is debate without negative hate-like feelings. In practical life those types are not so easy to distinguish, but the working hypothesis has been that the more emotionally loaded, the more aggressive, a confrontation is the more the depressing effect on creativity. Intellectual tensions, on the other hand provides a hotbed for creativity (Ekvall et al 1987). Sometimes Ekvall has found that "Conflict" comes out as a bipolar factor with "trust" on the other end of the scale (Ekvall 1991). The derivation of the "Conflict" dimension in this case (Ekvall 1990) is an interesting story that will be useful later: Inspired by the results achieved by Litwin & Stringer (1967) Ekvall's group developed an instrument of measurement as a first step in their studies of what constitutes a creative organisation climate. A problem that arose was the fact that "Debate" (To what extent there are confrontations and collisions between viewpoints, ideas, different experiences and special knowledge) did not have the expected discriminating power between stagnating and creative organisations. A closer examination revealed that respondents had difficulties distinguishing between confrontation of ideas and personal conflicts. Lively debates have ingredients of both. Differences of opinion based in differences in experience and knowledge easily turns personal. The solution was to add a set of distinct personal conflict questions ("There are intrigues here", "Here some people cannot stand each other") to form a new scale (Personal conflicts). This led to the debate-variable showing better discrimination between innovative (more debate) and stagnating (less debate) organisational units, but still the "personal conflict"

variable did not show the opposite pattern as expected. For some innovative organisations personal conflict was higher than for stagnating ones. Ekvall (1990, p. 28) chose to claim that in such organisations innovation happen "in spite of" personal conflict (which might be a reasonable statement if the debate variable is high as well).

Debate as the therapy to foster creativity has been a centre piece of our understanding of creativity ever since Janis (1972) studies of how well integrated management teams could arrive and spectacularly unwise decisions (like "Bay of Pigs"). Focus in some parts of psychology has been on how the mechanisms that lead to "group think" can be prevented from generating their distorting effects (c.f. Mason & Mitroff 1981, Mitroff 1987), while other parts, in the spirit of Moscovici (Moscovici and Doise 1994) focus on team building. Brunsson (1985 and 1989) shows that bias or even hypocrisy related to team loyalty can be a managerial instrument to generate successful action.

Schweiger et al (1989) designed an experiment on "programmed conflict" with managers as participants to settle whether "Dialectical inquiry" or "Devil's advocate" was the better form of conflict to improve the quality of decision and learning. The difference between the two is that in dialectical inquiry a team is divided into two sub-teams one of which is charged to work out a solution to a given problem and state the assumptions that go into that solution. Next the other sub-team has the task to challenge those assumptions and solution by posing counterclaims and work out a "counter"-solution. Finally the two sub-teams join and argue an agreed joint solution.

In Devil's advocacy there are also two sub-teams, but in this condition the second sub-team is only charged to criticise weaknesses in the first sub-team's assumptions and solution, but not to work out alternative ones. The two sub-teams join to argue an agreed solution on the basis of the first proposition and the critique. Schweiger et al also had a consensus condition where the team was not divided and no "programmed conflict" was entered. The results showed no significant difference between "dialectical inquiry" and "devil's advocacy" concerning quality of decision or critical evaluation of one's own assumptions, but both scored higher on both dimensions than the consensus condition. The

consensus condition, on the other hand, demonstrated higher acceptance of group decision and willingness to continue to work with the group. There were learning effects in terms of time used to find solution etc. when the groups were given the task to solve a second problem. These effects were higher in the condition of "programmed conflict". Schweiger et al (1989) can claim to have taken the study of conflict and creativity as far toward realism as is possible in the laboratory. They conclude their account with the advice to take the issue to the field. One could perhaps assume that something of significance happens when the two sub-teams in the "programmed conflict" condition argue a joint solution that eliminates any difference that might have arisen as a consequence of the different starting conditions.

Moscovici and Doise (1994) argue, chiefly on the basis of experiments conducted by Moscovici over a long period, that groups tend toward "polarisation". The experiments have had the following structure: A group of people (usually students) are charged to reach agreement on a complex judgmental issue. Each individual states his or her position (individually) on the issue before and after the group session. In the group session the task is to reach agreement. It was found that this agreement tends toward extreme positions (not toward the "average" compromise). However, when some structure was placed on the group session, like an agenda or a time limit, the group tended to reach a compromise between the incoming opinions. An interesting aspect is that when groups reached "polarised" opinion the individual opinions after the session had shifted toward the group opinion, while in the compromise solution individuals tended to return to their original opinion after the group session. Moscovici and Doise explain their results with the argument that holders of extreme positions tend to be more committed to their opinion and also to be better articulated. We see, maybe, a glimpse of the "group think" mechanism, but also how teams through consensus calibration become effective in carrying out specific tasks after "rules of the game" have been formed through group polarisation. A corollary, if the Moscovici & Doise results are generally valid, is that organisational change should be managed on a group basis (rather than aim at influencing the individual directly, e.g., by out of house training).

Another type of studies relevant as background to this report is the area of acculturation - integration of incoming company cultures into one joint culture - in mergers and acquisitions. Larsson and Lubatkin (2000) review earlier research finding that empirical evidence is scarce and fragmented. They use a case survey method applied to 50 case studies, which means that 50 detailed case studies were coded, in the majority of cases the case author participated as one of the coders, to complement the results of Cartwright and Cooper (1993), the most comprehensive empirical study so far. C&C found that pre-merger cultural attributes of the joining firms played a major role in determining post-merger acculturation. This would mean that there is little scope for management of acculturation. L&L, on the other hand, found that acculturation is best achieved when the buying firm relies on "social controls", i.e., "involving affected employees in introduction programs, training, cross visits, joining retreats, celebrations and other such socialisation rituals" (Larsson & Lubatkin 2000, p.2). "Social controls" also worked well in combination with "Autonomy Removal" (when new financial reporting, administrative, and operational procedures are imposed on the acquired firm). This "Autonomy Removal" did not generate successful acculturation on its own. It required the informal activities as complement.

In an earlier report from this study (Jönsson et al 2000) we have shown how complex the interaction between the disciplining coordination technologies and the creative problem solutions in product development teams can be. Here we want to focus on the immediate effects of confrontation in large product development projects in terms of stereotyping and a permanent devil's advocate role in the team. Should one believe that the confrontations have creativity-enhancing effects or do they generate depressive effects on motivation as well as creativity? Could a stable role as the devil's advocate in the team be a productive one? Under what circumstances? In experiments the setting is under the control of the experimenter, but in the field the context is unstable and it is not at all clear what should be meant by the quality of a decision. Designing a component within specification, time limit and target cost or making it slightly more expensive but with a revenue-increasing addition to customer value (the joy of driving the new car)?

The discussion will be divided into two parts. First a couple of illustrations will be given to iconic confrontations in product development projects and how their meaning is worked out by members of the teams in which they occurred. The capture of such data was possible by the use of a video technique where the confrontation episodes, recorded in the regular project management meetings, are played back to members individually some time later and their comments elicited. Then this empirically derived meaning of confrontations is compared with the results of recent experiments with programmed conflict in groups and with measurements of work climate done in one of the product development teams.

The setting

The setting for the studies of micro processes in product development reported here is the alliance between Mitsubishi Motor Corporation (MMC) and Volvo Car Corporation (VCC) located in Born, Holland. The two partners decided in 1992 to form a joint venture to run an assembly plant to produce competing cars, designed on the same technical platform, on a joint assembly line. A complex agreement regulates how variations in capacity use (which is determined by the market performance of the respective cars) is to be treated and how the parties contribute to the budget of the joint venture which is a Dutch limited company owned 50/50 by the partners. Earlier the Dutch state was a third party. The joint venture is a pure production company which is run according to the principles of "lean production" (Womack et al 1990) and as such it does not like the parties to introduce many variants and late design changes in new year models. Success on the European market, on the other hand, presupposes many variants and evermore emotionally "loaded" designs – "joy of driving" being a criterion in vogue where well defined engineering criteria like safety and quality used to dominate. There is a contradiction in the very design of the alliance ñ the stability and control of lean production is confronted with the flexibility and differentiation of market-oriented design. "Sequential attention to goals" (Cyert and March 1963) does not seem to be the solution, but bargaining and in bargaining the force of the argument (Toulmin 1958) is the factor to observe.

A project charged with the task to develop a new car (even if it is a new year-model of an existing car) is a major undertaking with several hundred engineers of different speciality directly involved and with strong (contracted) rules on cost,

time and quality. Each of these dimensions is followed up by separate staff units which meet with the project management team regularly in separate meetings to check that target costs are (Cost Review Meeting), quality standards and dead lines (Quality “gates”) are met. There are strong disciplining incentives in these governing structures because a “gate” is only “opened” (budgeted funds for the next phase released) only when specifications (given in the project contract) are met. One might wonder what happens when a “gate” is not opened, do hundreds of engineers sit down and wait while the brake system engineers solve a remaining problem? Of course not, a project may have passed Gate 5, while it is still struggling to get through Gate 4 with that damned X problem. The project leader will suffer a prestige loss if he (still no female project leader even if some female engineers are close to the final step) is not able to keep the project together and the brake specialists may not be considered brake specialists if they stumble. Specialist on different levels are keen to demonstrate their capabilities to catch the eye of the bosses and improve their career prospects. A project is an arena where capabilities are demonstrated.

As pressure to reduce “time to market” has increased the development of many of the components that go into a car has been “outsourced” to qualified suppliers, and, suppliers who want to promote better long time relations may offer interesting solutions on their own initiative. This means that project members will travel around the world to negotiate solutions with specialised suppliers. Time pressure also is an argument for “concurrent engineering” which means that many development sub-processes that were run in sequence before now run in parallel. But since the solution chosen in one of those sub-processes conditions what is feasible in other processes there is an increased need for informal and formal communication to coordinate action. An example of this is the area Electricity, which may have to redesign cabelage or processor use as other areas add or change functions using electronic devices. This criss-crossing communication problem due to increased time pressure on con-current activities is typically solved by increased frequency of face-to-face meetings (in this industry engineers have all planning technology and all devices of electronic communication one can imagine, but the more electronic communication the greater need for face-to-face discussions it seems. The different R&D departments at head quarters (engine, transmission etc) develop their own preferences as

pressure for cleaner engines, more joy-of-driving etc. mount. There are economies of scale to gain and a Brand Image to promote by having family resemblance between cars of the same brand, and common parts in the different models of the product portfolio. All this context structure sets the stage for the inner dialogue of the project management team. It is the “ground” against which meaning is attributed to statements and implications are worked out (Grice 1989):

Sequence 1. 1998 year model, Project management meeting, 19 February, 16.42 - 16.44.

The main actors in this sequence are Adam (a Dutchman), the representative of production control in charge of steering the new model towards Production Start without too much disturbance of current production and with deliveries from a large number of suppliers arriving on time and in the right quantity and according to specifications. He is a firm believer in “lean production” and as such he needs to be in control. Since purchasing is part of the production company the project engineers, who negotiate solutions with suppliers, have to hand over specifications to purchasing when an agreement has been closed for Purchasing to manage ordering and logistics. The other actor is Bertrand (a Frenchman) who is responsible for the GDI-project charged to adapt the environment friendly GDI-engine to fit the new year model under an unrealistic time schedule. This engine is supplied by Mitsubishi and he is already delayed by the late agreement between Mitsubishi and Volvo and he needs to get a couple of GDI-engines installed in the upcoming P2 trial series so tests can be done before Production Start. In order to gain time he wants continuous feedback on the release/supplier situation for the specific components needed to fit the engine to the Volvo car. He is negotiating directly with the Mitsubishi Engine department, but with the suppliers of the specific components via the purchasing department in Adam’s organisation (designs are ready but suppliers have not confirmed delivery times and thus have not been registered in the Production control system which Adam uses).

The sequence is located fairly late in the meeting. When Adam is about to leave after his point on the agenda, Bertrand catches the moment and tries to extract information on how Production Control sees the current situation of the GDI-project in comparison with last Friday.

Legend:

Pointed brackets, <...>, denote comments about what is going on besides talk.

Square brackets, [1....]1, denote overlapping talk.

Adam:

<a little upset>.....30 suppliers, partially not known, eh, on part level.

Let me have, once, eh, such a detail to do a study!

<preparing to leave the position up front>

Bertrand:

Adam! A question! <Adam standing up in front, head slightly turned to indicate that he is listening> Last Friday I received a memo from you with the situation. Since then I know that a lot of information was exchanged between you, Michel and Peter. My question now is: What is, according to you, the situation today compared with the situation as described in the memo last Friday?

Adam:

I cannot tell. I will have to check after this meeting.

Bertrand:

Can you, please, send me the information on the GDI-situation today!

Because I never receive any information from you before "No!

Impossible!" What I would like to see is how the trend is going on...

How the problem is maybe... eeeeh . [1.see.. how the..<drowned by

Adam>]1

Adam:

I [1like to.. I like to]1 turn it around! I want to see from the development side, eeh, you have to release. <shifting his paper pack (8 cm) to his right hand and using it as support when he leans forward somewhat>

Bertrand:

I do that <shaking his head>

Adam:

Give total information, eh <gesticulating>

Bertrand:

I do that <still shaking his head>

Adam:

OK, make an overview

Bertrand:

I do that! And the overview is quite clear[2]2 from our point of view[3]3. Just give me your view...

Adam:

[2 yeah?]2, [3good]3

Project leader:

Your feed[4back]4

Adam:

[4 and you]4 can have my view [5....yeah]5

Bertrand:

[5 from]5 your viewpoint and compared with last Friday. I just spoke to Anton yesterday, I know what is the viewpoint of Anton on the thirteen XX-suppliers. And the situation ... we can be somewhere! So please let me know how the situation is through your eyes (?).

Project leader: <leaning back>

You are asking for feedback which is not.[6]6

Bertrand:

[6 yeah]6

Adam:

That is no problem! But please give me your report on your total release situation! When can I have that?

Bertrand:

You can have it every GDI-meeting [7 every Tuesday]7

Adam:

[7 Yeah, but...when can you]7 send it to me?

Bertrand:

Every second week every Tuesday morning between nine and [8 twelve]8

Adam:

[8 Ca... yeah..]8 can you... can you SEND it to me? That's what I request!.....When?

Bertrand :

Eeeeh.... the minutes will be sent this week.

Adam:

And all the releases are in?

Bertrand:

According.. according to what we know .. except this one.

<pause> I see one problem... I can.. I can accept one, not five or six!

-end of sequence-

The discussion ends with project leader saying that now we have had our bi-weekly struggle around issues which we have to tune outside this meeting. We are many parties involved here and we have to do our utmost to give feedback to each other to arrive at a conclusion about what the situation is. Then he thanks Adam and says: "Michel and Bertrand, you will do your part in this and then Adam will bring this into the P2" <turning to Adam who is passing behind him on his way out> Adam catches the opportunity to make the joke "Don't make this into a decision now!" (There had been a heated discussion earlier in the meeting about whether an item in the minutes of the previous meeting was a "Decision" or a "Study Request") and the matter is closed in general laughter.

What goes on here?

Adam has just finished reporting on his point on the agenda (last sentence appears in the beginning of the excerpt) where he, as usual, exhorts product development to provide more specific information when they ask about whether a specific design will cause extra costs or investment in the production process. Bertrand takes the opportunity to put pressure on Adam to give feedback on the progress of the rush project to include the GDI-engine in the project so that it could be included in the test production series (called P2). Bertrand feels that he is not getting full cooperation from Adam's department, Production Control, in his efforts to catch up with the very stretched time plan for the GDI-project to go into

this year model. Bertrand has to "cut corners" to make it and this makes the bureaucratic attitude of Adam even more frustrating. Bertrand wants to trap Adam with a question that looks innocent enough, but is based on the assumption that the memo that Adam sent last Friday was incorrect and that this could be exposed in front of everybody. Adam would lose face not having done his homework properly and, as a consequence he could be pressured to be more helpful in the future.

Adam had been subjected to pressure during the half an hour or so that his point on the agenda lasted. His department does not respond to proposed solutions quick enough and Adam's counter argument was that he does not get complete information on the release (formally decided and documented design changes) from the project for the different variants. Time pressure is building up before trial production of series P2. Adam's line of argument is that he wants overview as well as details. He is a bit upset at the beginning of the sequence and gives his exit statement demanding, "for once", details (some of the parts do not have a listed supplier in his system, lead time being a critical variable) so he can make a proper study of proposed changes and their effect on Process.

As he is about to leave Bertrand surprises him with the question. What is the situation compared to last Friday? Adam wants to dismiss the question by saying that he will check after the meeting, but Bertrand engages him with criticism for lack of feedback. Gamesmanship is applied and Adam turns the question around and asks for total information and overview. Bertrand counter by pointing out that this is given in the regular GDI-meetings (to which Adam is invited). Adam does not go to meetings; he wants the information sent to him. Bertrand begins to hesitate and says, vaguely, that the minutes will be sent "this week" (This is said on a Wednesday afternoon). With all the releases? Adam asks, gaining an upper hand. Bertrand, knowing that he is not in total control of his sub-project, can accept that he has one problem which remains unsolved but not as many as he is accused of in Adam's Friday memo (Bertrand knows that the missing suppliers for 13 components is due to this information not being fed into Adam's system even if it is available, because he talked to Anton who is in charge of purchasing and Adam's subordinate). The project leader, tries to explain to the two combatants that the discussion is about feedback.

The sequence illustrates how the bad conscience of project leaders (who never have everything completely under control) can be turned against them. The question is what is gained by Adam winning this battle of wills in this meeting. He will still have the GDI-project to work with and the pressure will be on. Production Control is not likely to make the two owners give up this GDI-project which ties the Mitsubishi-Volvo- alliance closer together! It is good politics to help this GDI project forward! Creativity on the part of Bertrand will mean trying to get around Adam and approach his subordinates directly. Adam will counteract with formal agreements on rules (the following year he pushed through an agreement that car projects must channel all design changes through a "window person" who will have a corresponding window person in Production Control - Adam).

The sequence interpreted by participants.

The method of analysis is to play the video sequence back to participants individually about two months after the meeting and ask the question "What is going on here?". The comments were audiotaped and transcribed. The comments by the main actors are treated first.

Bertrand's first reaction to this sequence is "What can I say?" He remembers the scene very well. Adam had sent a MEMO-report on the release situation "last Friday" where he summarises what Purchasing and some other department has said. When Bertrand checked with Purchasing (Anton who participated in the PMG meeting) he found out that Adam's information was not true. Bertrand had been worried by the statement that there were no supplier for 13 components, and upset when Purchasing said it was not true. Somebody had made a mistake in Production Control and not fed the data into the system and when it is not in the system it is unknown to Adam. Bertrand's idea was to force Adam to admit a mistake, but instead he turned the question around and applied counter pressure. Bertrand thought that a joint discovery that both were right (the information was there but not in the system) could be a basis for the future. He explains the situation (which is not an uncommon one) as being due to the fact that Adam does not have enough people to work things through and therefore uses the more comfortable tactic of accusing the accuser of having a weak case (give me total information!). Bertrand's ultimate goal is to make Production Control realise how

much simpler everything would be if they set aside half an hour every second week to attend the GDI-meetings. They never turn up.

Adam's first comment is also "What can I say?" He then gives an account for the background to the problem where the point is that the Volvo approach to doing a project is not "complying" with the NedCar organisation. We (Production Control) do not get the complete information needed to do a study as requested. Apparently it is very hard to explain to Volvo members that they do not give correct information. Therefore it is not possible to answer something which cannot be answered. Adam also points out that he cannot attend the separate GDI meetings. He is present in almost all PMG meetings, except during the last few months he has been more and more absent, and we can discuss GDI in that meeting. What he wants to get across is that Production Control needs is proper information not only "fiddling out information or whatever thick reports".

On the question whether GDI is a special case due to its late addition to the 4097 he says that it is basically true that they have a short lead time, but many parts are common with Mitsubishi and 4097 and not so many unique parts. They should be able to handle it.

Both parties want to teach the other how to work properly to get the job done. None of them seems to succeed. In the short term, at the meeting, it seems like Adam got the upper hand by turning the question around and making Bertrand hesitate as to when he could deliver the minutes from the GDI-meeting and to admit that he has one remaining problem.

The project leader describes the incident as Bertrand asking for feedback (which he also says twice in the sequence). Then he uses a metaphor to describe the background: "When you send in a PEC (Product Engineering Change) it is like a black hole – no response". This problem is so much the more critical for the GDI-project, which is under strong pressure to catch up, if it were to end up in "the same treadmill".. he sympathises with Bertrand's problem. Adam is described as a "bureaucrat" and he defends himself by attack. To further illustrate the differences in ways-of-working the project leader tells a story about a recent incident where information was sent to Production Control concerning the Middle East variant.

The only change was that components A and B (properly specified) were to be replaced by components Y and Z (also properly specified). This was not accepted by Adam on the same grounds! (Give me total information!).

The conclusion given is that the two actors did not solve their problem but they exposed a weak spot in “our interaction”. One possible explanation is that Production Control simply do not have enough people. It is not only that they have less people than “we have in our own plants in the corresponding department” but also that they have 3 – 4 variants in parallel, Furthermore they do not have one annual model change but two (Mitsubishi and Volvo). But their response to the slogan “lean organisation” has turned into “mean organisation”. The core meaning of lean organisation is not to have too few people but to be especially clever in adapting to new situations quickly.

Non-speakers

The project secretary explains the sequence in terms of the unrealistic time plan the GDI-project has to meet. He was surprised that the project leader accepted to take it on board. Bertrand is working from Sweden where he has a little team that tries to speed up the release process by having meetings on the status of the different releases. He wants Adam to participate in those meetings and give his opinions on the consequences if this or that release were to come in on this or that date (to help prioritising efforts) but Adam refuses to respond on the basis of inadequate information. It is a game of covering your ass in preparation for the quality gates. Bertrand is a bright guy but he does not know how things are done at NedCar and because of that he needs to ask the NedCar people “Is it OK if I give you this information?” or “Tell me what information you need!” He also is in an ambiguous spot since the project leader is responsible even if Bertrand is a kind of a project leader. Adam is also irritated at being put in a tough role like this – the project secretary (a Dutchman like Adam) thinks that something else is going on behind this – but he is trained to act like this for Production Control. The project leader has tried all the time to build a team “involving all disciplines”, and he has not succeeded in this sense (Adam’s role), but he keeps trying.

The deputy project leader sees Bertrand as a “fresh wind” in the project. He came in late (and has not yet full knowledge of the tricks of the trade). This sequence is

an illustration of this. Bertrand tries to take the discussion with Adam in front of everybody, something that the project leader or his deputy would never do (unless the “cup runneth over”). Perhaps Bertrand’s cup was full here. The conflict escalates between, on the one hand, Production Control’s avoidance of project meetings and their demand for consolidated information on paper before they study an issue and accept or reject a solution, and, on the other hand, our efforts to build the team and develop the alliance. They are not members of the team and they come here to report (not to contribute) and they think that the PMG is an ineffective meeting. The deputy project leader can agree that the meetings are not very effective, but he has not seen anybody that can do it better. The purpose is for 23 – 25 people, everybody with executive responsibility, to try to align their views. Teambuilding is a challenge, especially when you cannot hand pick every member, which is the case here. This group contrasts distinctly with the Steering Committee pre-trial, (where the deputy project leader is a member, and where Process, Mitsubishi, and Volvo meet to decide, formally, about proposals). In that meeting everything is prepared in advanced (you only make enemies by trying to start a discussion) – very Japanese!

Quality comments that Production Control probably does not have the manpower to attend meetings or to respond to this way of working so they respond with counter questions instead. The GDI people have worked hard with providing information and in the end it is only a matter of a list of releases which has been presented at the GDI meetings. Bertrand has gone it through with Purchasing and they say we have this and, we have this, and what he wants now is confirmation, but he doesn’t get it. They don’t give progress information on the current situation. They have their meetings and they are not part of the project. We are used to work as a team and try to solve problems and move ahead, while they work by the book (“we have not got this or that form”).

Purchasing (a Dutchman) starts by stating that Adam expects good engineering information to accompany a formal release. At certain moments you have to legalise what you are doing, by showing the system what you are doing. The fact is that the system releases are not done in this case. That is what Adam is referring to. He knows that the project is working in a grey area and wants to make it as black as possible. He cannot tell his assistants what to do until the releases are

there and until then he has no planning. The GDI-meetings are 90 % technology and 10 % Purchasing or Production Control. Therefore it is not useful for people with a tight time schedule to attend. That is why they miss some vital information.

Interior (who has worked in the alliance since its start 5 years ago) sees the situation in this sequence as dealing with materials for the upcoming trial production (P2). The cause of the discussion is that Adam does not participate in Bertrand's project meetings, so this discussion pops up in the PMG meeting. Bertrand cannot control his release situation unless he gets response from Adam, who claims that 13 releases are missing while Bertrand to one problematic release. This sequence illustrates the difference between a team player and a spectator. Adam does not act until he gets the information ("When can you send it to me?")! He could have walked over and to Bertrand to get a copy! He is marking territory! Interior's theory is that Bertrand thinks it has gone too far and he wants to face Adam down in front of the project leader so that he can see the cause of many of Bertrand's problems. Interior is impressed by Bertrand's behaviour. He controls himself, does not raise his voice, he is just stubborn. Swedes can be seen raising their voices in some of these sequences but Bertrand stays cool. Adam does not have an answer so he turns it around – give me your release plan! This is a personality clash rather than a cultural one. In fact nobody in the room knows how to work with Adam, so they tip-toe and watch their step. We work fairly well with the others but that man...

Properties sees the sequence as starting off well with a very concrete question. The respondent should have done, what he avoids, answer the question. But then Bertrand enters into accusations and the whole thing degenerates, even if they tried to repair. One noticeable thing here is the danger of a third party (the project leader) trying to interfere. It doesn't help.

Bertrand has a complex job. He uses the support (Quality, Economy, General Support, Properties, Testing) of the project and in this sense it is a System Task (Engine and Transmission for the GDI). But he is also responsible for complete vehicle consequences of the GDI engine. He has dual roles. Furthermore all projects are different, and the projects down here (Born. Holland) are different from the ones at headquarters (attitudes of management, discipline in meetings

etc.). Also language is a restricting factor for everybody no matter how good they are in languages, and Bertrand has to communicate with people here, in Gothenburg and at the Mitsubishi engine plant in Japan. He is not a well-trained project leader but you have to admire him for doing his utmost in this gigantic task. His project is like running a medium sized company without proper support, not even a secretary. Leaders in companies have time to be social, that is not the case in this project. The effect is that you burn yourself out.

Body thinks that Bertrand is mostly annoyed by Adam not coming to his meetings and there is some pie throwing in this sequence. These tough guys from Production Control haven't always done their homework so they start out by shooting from the hip. When a thing pops up like this they start complaining about what a bad job we are doing in order to cover up their own shortcomings. This cannot be proven of course, but that is how one feels about it. Body illustrates by telling a story about a case when there was trouble with a certain body colour. Body kept asking "Is there a problem?" and the responsible guy would talk about plans or something else or just say "no". This went on for 9 months! Had he reported his troubles we could have done something about it together, but he covered up until the failure was obvious. They don't work like we do!

The project controller laments if only Process could step out of their office to keep informed. They want everything served at their table! Maybe they are short on personnel, maybe they are not interested. The GDI-project is on a short time schedule, everybody has to chip in. It will probably not work without a representative from Process on the GDI-meetings. In the worst case we will not get the GDI-car on the production line.

Chassi and Installation sees a pattern also present in some other sequences. Adam comes in, says "No!" and walks out. He does not have the background to help since he does not go to meetings and he has not given any comments on this issue before. Chassi remembers that the tension was released to some extent by a joke that is not shown in the sequence. His opinion is that Adam lost face here.

Electricity defines the problem of this sequence as being that the GDI-project is supposed to build their first trial series, but they do not get the needed feedback

from Production Control to know whether it is possible; have orders been sent out, have suppliers confirmed delivery dates etc.. Adam wants all documentation on hand before he pronounces judgement. In fact it is Adam who orders materials (even if Purchasing helps him) and he gets the feedback from suppliers on delivery dates. This is a unique way of working! He (Adam) does not want to participate in discussions, he wants everything sent to him! When asked Electricity cannot say whether this is Adam's personal way or if it is a mirror of NedCar's philosophy. However the new window person who comes to the meetings for Production Control now is more willing to discuss solutions, so it is probably Adam's personal style, no doubt this sequence is "typical Adam".

In summary the participants interpret this exchange as a power game between Bertrand, representing the project culture (where Production adapts to "niche-designed" cars) and Adam representing the lean production culture (where design is supposed to come up with a production friendly car). Bertrand wants to make Adam "lose face" by exposing his unwillingness or inability to give feedback (which is an important norm in the project culture). Adam ripostes by attacking on Bertrand's weak spot (give total information) and Bertrand's bad consciousness (he never has "total information" about all details of his project since "concurrent engineering" is used to meet an impossible time schedule. Bertrand is especially vulnerable since he really needs these trial cars for testing. Adam feels vulnerable as long as he does not have all information in his system. Coordinating by systematic information compilation is pitted against coordination by face-to-face meetings where people make commitments they are expected to meet.

A tentative description/explanation of what is going on based on interviews and observation of similar incidents in this and other projects is the following: A car project is an unusually complex project – it is big, involves many advanced suppliers, and competition against a background of overcapacity in the world adds to the pressure. Organisations develop "ways-of-working" (rules of the game) which help members cope with complexity. When there is no obvious objective to direct rational choice members may fall back on "ways-of-working" to construct the appropriate, professional approach to a problem. In situations where two or more "ways-of-working" are confronted an interface problem is discovered. A problem that is emotionally loaded because the rules of appropriate

behaviour, which are laid down in the respective ways-of-working form the basis for “constituent expectancies” (Garfinkel 1963) of the game, and these expectancies are now frustrated. This adds to the complexity of the situation for people like Bertrand. The temptation to use stereotyping to “simplify” things must be great. Both parties accuse one another of behaving “unprofessionally”.

Communication aspects

An interesting question on this sequence is whether it was good tactics by Bertrand to start this confrontation. Even if he would succeed in making Adam lose face in front of everybody it is unlikely that Adam would be persuaded to participate in a change of the rules of the game. His position, to demand total information (all releases) from “the design side” and then, on this basis claim that it is up to Production Control to judge whether the changes are acceptable or not, is backed up by the organisation he represents. This perspective is an analytical, planning approach where rational decision based on complete information is the ideology. The project ideology is one of action in teamwork and keeping informed through interaction rather than by document. This requires participation in meetings and adaptation to the changing situation. Garfinkel’s (1963) studies show that people expend large amounts of emotional energy to maintain or re-establish the rules of the game. Adam, gives the impression (observation over a 2 year period in two consecutive projects) of seeing his task as being to smooth the way for the lean production regime of NedCar by reducing the number of changes and variants to a minimum, which is rational given that the NedCar organisation is under strong pressure to keep costs at a minimum (a policy supported by the top managers from Volvo on the Board of Directors of NedCar). Given that this is a correct description the only road to a change of heart would be through top-down decisions in the NedCar organisation and this could only be initiated if the project leader persuades the top managers of Volvo that NedCar should be more flexible. This means that Bertrand is trying to send a message to the project leader through this confrontation. The fact that the confrontation is taken in the PMG meeting is a signal that the situation is desperate and everything else has been done.

The project leader first intervenes in the confrontation by translating the issue into one of feedback (which nobody can refuse), twice, but it does not seem to have much effect. In his conclusion of the matter (after the sequence) he refers to the

team spirit by pointing to the fact that many parties are involved and everybody must do their utmost to help.

Bertrand's tactics to ask a concrete question about facts to "trap" Adam seems to serve his purpose as Adam admits that he does not know. It is probably standard procedure in most situations to "test" the appropriateness of "rules of the game" against concrete cases (Jönsson & Macintosh 1997). Given that the parties had agreed that there was an information gap they could have embarked upon (temporary) rule construction for the GDI emergency, but the process degenerates when Bertrand follows up with an accusation – the opportunity to reach a common "definition of the situation" was lost. Instead Bertrand could have sought concessions about the need for current feedback against his own promise to pay better attention to the need to "legalise" activities of the project by entering them into the system (as Purchasing suggests).

Resolution

According to Bertrand this issue was "solved" by moving the matter up the hierarchy. Adam and Bertrand got a memo from Adam's boss saying to Adam "You solve this! See to it that the information from GDI is correct" (in the system), and to Bertrand "You must see to it that Adam gets the right information!" After this push Adam responded to Bertrand and it turned out (according to Bertrand) that Bertrand's information was the correct one. This took energy and time. Bertrand drew the conclusion that it had to be lifted to a higher level because Adam does not see himself as "co-operating on the same level" as the responsible engineers in the project (ST (system task) managers) as was intended. The sore nerve on the design side seems to be this perception of inequality in level between Adam and the ST-managers. Here lies a cultural difference, but it is the traditional one between Design and Production?

Sequence 2, 1999 year model, project management group meeting, 29. October 1997 11.38 – 11.40

Setting:

Charles, who is responsible for Chassi and Installation in the project to develop the 1999 year model, is reporting on the situation in his area of responsibility as

scheduled in the agenda and part of this report concerns the outcome of a recent Cost Review Meeting (CRM) where the whole project, area by area, is followed up on how they have managed to stay within target costs for each component. In these meetings the established target cost for each component is compared with the latest estimate for that cost, which consists of the production cost or purchasing cost of the component itself, plus investment in the production process due to the component, tools, and engineering hours invested in the design. According to Volvo standards the ST-manager (e.g. Engine, or Body) is responsible for all costs related to the task and their project budget is based on that. However, in order to get estimates of what consequences a certain design change will have in the production process the ST-manager wants to know, before investing too much engineering hours in a specific design, what kind of effects can be expected in "process". If, for example, the change will cause considerable tooling costs it is better to stop the idea before engineering hours have been spent on something that is not going to be economically feasible anyway. In this case such estimates of effects in the production process have to come from NedCar, which is a joint venture company with Mitsubishi under strict budget restrictions. NedCar does not want to spend their engineers valuable time responding to vague, unspecified engineering changes. They would like Volvo to behave like Mitsubishi that comes in with a specification of the next model without late additions of changes. Then lean production can be a reality! The budget of NedCar is based on the preliminary design of each of the two cars that will go into production during the year. This preliminary design (usually also the final design for Mitsubishi) is specified, part by part, on "Design Concept Sheets". If somebody of the two joint venture parties want to change the design after the budget has been decided they have to assume responsibility for the extra costs this causes in the joint venture by signing the bill for it. This means that there are crossing responsibilities here. The design engineers have responsibility also for costs that arise in the joint venture organisation, but on the other hand they have a basis for negotiation in the fact that they have the last word – they may refuse to sign a bill for unreasonable costs. NedCar on their part have strict responsibility for keeping their budget, and an opportunity to expand that budget by extra-budgetary investment due to design changes.

Charles (and several of his colleagues) had been surprised by cost estimates provided by the cost engineering department of NedCar. Estimates that they heard for the first time at the CRM and which in some cases demonstrated that “problems” that were believed solved came to life again. Such estimates should, according to established procedure, be reported on PEC forms and thus be known by the responsible design engineers. Charles starts the exchange, but soon the controller takes over: Adam, Production Control of NedCar, is on one of his short visits to the PMG meeting:

The sequence

Legend:

Text in pointed brackets <...> comments on activities beside speech

Square brackets [1...]1 denote overlapping talk (note that there is no overlapping talk in this sequence)

DT = Design Task is a subordinate unit to an ST = System Task

PEC= Product Engineering Change (a form that summarises all information concerning a design change (including process costs). Also called “Yellow Forms”.

Other speakers than Charles and Adam are named by their responsibility area.

Charles:

.. during the CRMs we had the cost engineering guys from NedCar here coming in saying that this is going to cost you this and this is going to cost you that and my DTs and myself have not heard about these costs ... and while you are here Adam... I sent you a memo on this .. <lower voice> I don't know whether you agree..<normal voice>.but I don't know where all these costs come from... we can't find them in PECs we can't find any memos and some of them have not even been discussed properly in activity teams.

<Body trying to break in>

Adam:

Costs come from the basic plan and from issues..... yeah I suppose now they are updated... and in those... that document you find the investments

Project Leader:

But aren't it normal that you have it also in PECs?

Adam:

Initially that is not needed!

Electricity:

But if the investment is dependent upon the technical design that we do? But if you don't get the feedback that this will cost you that much!?

Adam:

But, listen! We have sheets for design... design concept sheets. That is correct so we know the design. We report than in the cost integrated plan (?) So you can discuss with these departments about the cost of course.. no problem.. if you are okay on that then you know that this will be the cost for this project. If you change the design then you have a problem!

Quality (?):

Then you will see it on the PECs

Electricity:

I had the same experience as Charles! The first time I saw these costs was when I got a thick booklet <showing with the fingers how thick a pile of paper it was> .. and when I read it through it said "investment in final assembly"! I never heard of it! It had never been reported to me nor my DTs! It is not implemented in yellow forms, I don't have a budget for it! I don't know what it is!

Adam:

I don't report to DTs not even to STs

Electricity:

Then it is not my problem, because I don't take the cost!

Controller:

But Adam! If we do not have corresponding figures between the sum of the yellow sheets and the basic plan we cannot sign the basic plan. We don't have those costs in the PECs therefore we do not have them in the yellow sheets. So we need to have the PECs updated, and the costs are splitted (sic!) up per DT!

Adam:

No need. There is no need to have that additional investment on the PECs

Controller:

Yes

Adam:

Why?

Controller:

Because we need to penetrate those costs as well as all other costs per DT and it is the STs responsibility to say if these figures are correct or not. The basic plan is just the sum of all costs and when that sum fits with the sum of our yellow forms then the basic plan is okay. If it is not the same sum then it is not okay!

- end of sequence-

What goes on here?

Charles initiates a complaint that in the cost review meetings cost engineers from NedCar have presented investment costs in final assembly due to product changes which have not been heard of before and which have not been recorded in the appropriate documents. Charles was confronted with cost overruns that he could not explain in the CRM and he is upset. It seems like NedCar is sending bills which have not been agreed, and Charles appears unprofessional in front of people from head quarters who conduct the CRMs. Adam explains that the costs are recorded in the basic plan (on which the budget is based). If you change the design then you have problems! The project leader points out that these extra investment costs will show up on the PECs according to standard procedure. Adam says no, not needed. Electricity, backs up Charles' complaint and points out that if these costs were known the project might have chosen other solutions. It is not possible to assume cost responsibility without information. Adam invokes territory by stating that he does not report to DTs or STs. The controller intervenes by explaining the rules of the game between Volvo and NedCar on this issue. If the figures do not match Volvo will not sign the bill and clearly indicates that he is the one who checks the figures before the Volvo representative on the NedCar board signs the bill for extra costs.

One should note that even if this exchange is highly emotionally loaded people speak in an orderly fashion without overlapping talk. All participants seem very attentive. This is an important issue!

Comments by participants.

Charles first comment when reviewing this sequence is about his satisfaction that he was the one who brought this issue up, because everybody recognised the problem and had similar experiences. At the same time it is clear that Adam does not recognise the problem because he has a fixed budget based on predetermined volumes and designs (If you change the design then you have a problem!). He does not see the relation to how product development responsibility is run in Volvo (which includes cost increases in process due to changes). Charles is of the opinion that this issue has not been resolved and probably never will be. When asked "What exactly is the problem here?" Charles uses an example: Suppose that we were to change the design of the steering wheel making it "deeper". This would mean that they take up more space in the racks used to transport and store the steering wheels in Production. Either the racks have to be modified or more racks are needed for the same volume. That will cost some thousand Guilders. Obviously Design has to carry that cost, but if we are never told and if we are not able to check whether it is a reasonable connection with our design change But Adam has a lump sum budget for investment in tools and process of millions of Guilders. He does not need to come back to his superiors and ask for more money until that account shows a deficit. Then he will use some persuasive examples of effects of design changes initiated by the owners to justify the budget increase. But Charles and his colleagues need to know the details and as early as possible if they are to be able to keep within target costs. We cannot work with a steering wheel that will cost 5 million for the planned volume and suddenly be told that now it will cost 5.5! Many little things like this will cause an overrun of the project budget and somebody up there will be pissed off! The actual cost increase in this case was not very big but where will it all end if a stop is not put to this?

The project leader describes the sequence as an encounter between "two ways of working." He reiterates that in Volvo the ST-managers are responsible for all costs that their design changes cause and this must be accounted for in one document

(not bits and pieces). NedCar is responsible for process costs and they must respond twice. First when the project sends them “Design Concept Sheets” (DCS) which contain the technical solution to a design job, and then when they get the “Product Engineering Change” (PEC) that is the final solution. Almost always there is a development between the two since details are worked out. Volvo places emphasis on the PEC (because it is a document that is worked through) while NedCar builds its budget on the DCS. The PEC is important because it announces the coming implementation order (AO). The project leader also states his respect for the competence of the cost engineering department of NedCar. The problem is that they work only with the PECs and they do not check the responses the project gets from Production Control on the DCSs. They are very thorough in their follow-up of consequences, talk to Purchase especially the Purchasing Engineers, the Suppliers etc to find cheaper solution. A small dedicated group with lots of knowledge. It is their information we see in the reviews of the cost situation per Design Task (in the DRMs). In sum, the PEC-based cost information is more reliable than the information based on the DCSs, if they do not match it is the PEC information that is valid. Now, the Basic Plan is a summary (based on the DCSs to start with) of the effects of the project on NedCar operations. Since NedCar is an organisation run as a cost centre the changes documented on the PECs have to be included when the Basic Plan goes to the Board of Directors for attestation. It is thus very important for NedCar to have the complete project described the basic plan since this is the base for budgeting (including investment in process). There is little understanding for this in the project; NedCar cannot take decisions on the operational level on process changes when Volvo wants to change the design of the product. On its way to the Board the request for budget according to the basic plan (or changes to it) goes through a check on the operational level (where the controller who is active in this sequence does the checking but a senior manager signs). So Volvo has the final word (in the NedCar board) on the effects on process from product design changes.

The discussion in this sequence is about discrepancies between the figures on the DCS and the PECs. The project leader admits that there is a “grey zone” between updating the DCS and the final PEC. The local office is working on the procedural aspects of this. This is a parallel process to the project. NedCar needs to recover their costs from the owners/customers, who in turn need to design a car with

properties that will sell it in the markets. The problem for NedCar is that they do not have a budget for adapting the production process to the new models that come every year, that has to be settled for each specific launch.

The controller starts with the background in the Cost Review Meeting where costs are checked ST by ST. The ST- manager meets the controller, the project accountant in charge of that ST, Cost Engineering. The Costing group, that works with tools and components is also represented. The CRM basically goes through the current cost reports item by item to check whether they accord with the opinion of the ST-managers who are responsible. It turns out that for almost all the STs estimated process costs do not match the information on the Yellow forms of the DCS/PEC. These Yellow forms are supposed to be filled in from the start and then up-dated as the project proceeds. The explanation is that Production has not responded with new estimates caused by the changes and ST-managers are unable to consider full cost effects in their design decisions. On top of it Adam claims that they have all costs in the basic plan, plus he does not report to ST or DTs. The problem for him is that the cost in the basic plan is just their offer as long as it has not been formally accepted by Volvo. Charles wanted to “lift” this issue and Electricity seconds his concern (they are responsible for “time, technology and cost”) to get support from the project leader in this. The irritation is directed at Adam.

The matter has not been resolved after the meeting. Volvo has not signed the budget because the basic plan figures do not match the information on the “Yellow Sheets”. These “Yellow Sheets” are viewed by NedCar as internal Volvo documents. A requirement from the project is that Production Control be represented at the costing meeting to explain their figures, but they don’t turn up. There is hope though. The Controller has heard that NedCar has complained to Volvo on a higher level that the projects do not pay proper attention to the consequences in production and this opens up for the argument that a good premise for such attention is that NedCar informs about them. The matter might be solved in time for the next year model. In sum this sequence illustrates differences in ways-of-working. The controller complains that it is a gigantic task to check tool costs and components cost for the CRMs and added to that one has this non-response from production. It’s probably that they are short on people

rather than the lean production ideology. Adam got a Belgian assistant with experience from the Gent plant and even some from the Gothenburg plant - he even knows some Swedish - to support him on this. That's promising.

Electricity, who spoke in the sequence in support of Charles claims, starts his comments by saying that this is not about costs but about "ways-of-working". "It seems like we have no definition of how we ... Electricity starts again by explaining how it is normally done when a design change is contemplated. You get estimates on tooling costs, component costs and "at home" we get estimates from "production control" about likely effects on assembly time, necessary changes in equipment. In that way we can weigh investment in the process against savings in assembly time etc. As it is here one doesn't have the faintest... what my design draws in investment... they report a big lump sum for investment in process. (Electricity talks in unfinished sentences... he is upset also when he looks at the video recording). This is a huge problem... you are responsible and suddenly you get these surprises, and "the controller" cannot follow up either since we only have this lump sum for investment. Electricity, who is fairly new in this project, has spent some time trying to trace how these figures emerge and where they come from. He tells a story about an estimate on the lower level of a 150.000 guilders the grew on its way up in different summations to 300.000 and how the guys who did the original calculation are not allowed to tell the ST managers directly. So when we get the figure we don't know what it is! The problem is that Adam doesn't either, but his attitude, that the design must be frozen when the DCSs are summarised, is frustrating. It is as if his basic plan is the end product.

Electricity starts to philosophise how this came to be: Maybe it goes back to Job One when everything was one big warm bosom. Everybody chipped in and it didn't matter who spent the money. But now quality is the core issue, running changes to improve the product, 3-4 project running in parallel. Suddenly it is damned important who is responsible for what cost. People write time on this or that project. We have to investigate the allocation of cost within the project because there are different sources of payment....well no wonder procedures are not stabilised.

(No comments from Adam on this sequence)

Non-speakers

The deputy project manager first comments that “we lack internal routines...ways-of-working... deficiencies in interface with NedCar...ambiguity in how cost..how communication on cost is managed. We work on ST-level and others communicate more on the managerial level”. The deputy project manager searches his mind how to articulate the ambiguity that is illustrated in this sequence.

Adam says that if you change the design then it is your problem and that is making it easy. The problem is that since the ST managers do not have transparency they cannot be held responsible for all cost that they cause. For the deputy project leader who came down here fairly recently it was so natural that you didn't think about it - the fact that you have to have the information if you are to be held responsible. In that sense the experience in the project has been somewhat of an aha!-experience. Things you took for granted before have become visible and you have to think about them. He is still unsure about what is included in ST responsibility here. From negotiations with suppliers to the moment when the car leaves the assembly line, where does it start and where does it end? It is important to work with these issues, but the first task is to get the car ready in time and within specifications.

Testing (whole vehicle) is a Dutchman, who has developed a kind of a father-role in the project based in his ability to provide context that renders confusing situations understandable. This ability builds on his experience with both organisations (and in a certain burly fatherly identity). He describes in some detail the Basic Plan document (“shows in a small column NedCar investment related to the project, and it gives only total sums”). Therefore the STs and DTs sometimes see the investment costs they are responsible for sometimes not. They tend to “pop up” in meetings like the CRMs. First Adam claims that the project engineers can see their costs in the basic plan then he says something like don't ask me for the details I only work with the lump sums! That is the issue here: Why doesn't NedCar communicate the figures on DT level? Testing says that this wouldn't be difficult because the investment figures are worked out by the Activity Teams (a group with the project engineer, process engineer, and purchasing). These teams are supposed to treat the PECs, whatever problem a change may carry with it is

discussed and consequences agreed in the Activity Teams. Adam wants to apply a stricter rule – that activity teams are to be set up only after NedCar has agreed to do so and after have worked through the whole project content based on Design Concept Sheets. The Volvo side wants to have the discussion earlier, before they have committed engineering work to a technical solution, in order to avoid wasting engineering hours on something that would draw too much investment costs in the process.

The issue will stay with us for a while because the routine in place now is not a good one. NedCar is not likely to change easily because the decision on the basic plan is taken on the board level. It is central to their control structure. It becomes tricky when this basic plan does not represent the Truth anymore.

Technical Documentation (stationed at headquarters) is surprised that there can be disagreement between the basic plan and the sum of the “Yellow Sheets” (which are specified for each Task – ST as well as DT). The problem in this sequence should never arise! If the STs and the DTs need some information they should seek out Adam and get it! Adam should not have to seek out the STs or DTs to inform them about the consequences of what the STs and DTs have decided (they should know that before they decide). People should not be “surprised” in CRMs, it is one thing if they have been told that it will cost them 10 thousand and later find out that it is 25 thousand, but if they have not made the effort to find out what the cost is in the first place they should not be surprised. Technical Documentation stresses “due diligence” as a requirement. Next he states complete agreement with the controller claim that one cannot have a basic plan that does not match the “Yellow Sheet” information. That is the basic problem here. This project is run according to established Volvo practice (with “Yellow Sheets” etc.), while NedCar sees its Basic Plan as a fixed decision to be adapted to. It is a matter of who is in control, the plan or the “real” project as documented in Yellow Forms. There is politics in this. They are used to being in control, but that is not the way it is supposed to be.

Technical Documentation is of the opinion that this issue has not been resolved- they work problem by problem here - and when the next year model project starts in a couple of weeks they are likely to fall into the same predicament. In the long

run the parties will move towards a common understanding, conflict by conflict. The gates (sequence of 10 meetings to check the progress of the project) provide an arena to remind the project and Production Control that Yellow Forms and Basic Plan should match. Technical Documentation is very sensitive to the “unambiguity” of the underlying process. He also points out that Adam overplays his role of schoolmaster to the project. There is also mention of a new representative of Production Control who is more open to discussion and at the same time tries to argue the Production view.

Exterior, a newly promoted Dutchman, coming from NedCar, points out that when Adam starts the discussion he should have said “Every PEC goes via our costing department. They have the information even if they have never seen the Yellow Forms”, but do their own calculations. Volvo has its “Yellow Sheet” and NedCar has its Cost Engineering Sheet (always worked out together with Purchase). The question is who has the final say, and Exterior thinks it is NedCar since they are the ones who buy and pay for the things that go into final assembly. The sequence shows that the rules are not clear enough. Exterior knows that at present there is a meeting once a month between Cost Engineering of NedCar. The Yellow Form and the Cost Engineering Sheet should be equal, not complementing but equal. Then when the project controller and the cost controller of NedCar agree that I as ST responsible have a deviation from the budgeted investment then I will have to go to the PMG and ask for more money.

Properties does not feel concerned about this. His activities do not relate to process cost. The sequence shows that there are problems and that we supported Charles. Properties points out that he has similar problems with his own department (bills for testing that components have the right properties can be surprising too).

After sales describes the sequence as a discussion over working routines. He cannot follow it (well, he understands what they are saying) and it is obvious that those involved “speak different languages.” Routines are not tuned yet. Volvo introduced a new routine with this project (the Yellow Sheet” is new). There isn’t enough time to sort things out! Nothing has been done about this since the meeting where it popped up and it will pop up again!

There is some work on a new manual called the DEC-process (Developing Existing Car) but that has not got to such a detailed level yet. Once Volvo shows clearly how it wants to work in this area NedCar can find the appropriate contact points...

A background problem is that NedCar (almost equal to Mitsubishi) and Mitsubishi have a different system from Volvo to document the car and its parts. Information from Mitsubishi to NedCar can be transferred by computer, while the transfer from the Volvo system to NedCar's system has to be done manually (This is done by Adam's department). The differences in principle between the two systems are explained.

Quality points to the fact that when Process gives a figure on final assembly investment it could represent anything from tool repair to new packaging of components causing new routines for waste management. It may be that people have different perspectives or simply that they do not have an overview of the cost structure or even that they try to hide costs. The conclusion is that we do not have a proper agreement on ways of working between Volvo and NedCar. A minimum requirement is that if a ST manager posits a change request he should be confident that he will get the information necessary to make a decision.

Body when looking at this sequence started by saying that he discussed this very issue in a small group yesterday. The problem seems to be that NedCar works in a relay fashion while Volvo works concurrent. They want to have a cash flow that matches the cost flow, we need money in advance to run the project. This generates contradictions. In my area (Body) we do "moonshine" work since a year by engaging the relevant NedCar people meeting them every second week to go through the current status of the Body area. The new arrivals, like Charles and Electricity, who also have several DTs located in Gothenburg (not on location in Holland), don't know how to manage these things. They have to do it by the book and then they need to have process investment on the PEC document. Here Adam is wrong the established rule is that that information must be on the PEC. The trouble is that if there were rules and if the rules were followed.... but it doesn't function. What we have done is to tie us closely to purchasing and meet them face to face. They know what we need and also what we are working on. For the STs

with some people working out of Gothenburg.. they don't know how to deal with this. Sometimes the project leadership has had to give a go-ahead without the necessary confirmation from NedCar in order not to lose time and that doesn't help relations. One thing is certain: if we were to work by the book here we wouldn't get a car out at all. It is a matter of working simultaneously with product and process and finding the necessary access to NedCar (it should be noted that in another sequence from the same meeting Adam informs the project that he has dispatched a memo to NedCar top management and the local Volvo manager that all contacts between the projects and NedCar should go through designated window persons – the NedCar window person being Adam). Body ends his comments by stating the you cannot have “business relations” with a production plant.

Market Planning describes the sequence as “heavy”. It illustrates that we have a member of the team that does not apply the same work routines as “we” do. He describes ST responsibility in terms of technique, time, cost, while NedCar has some other division of responsibility. The difficulty illustrated here goes both ways and we should really sit down and come to grips with this. Market Planning cannot understand why the process costs are not entered on the Yellow Sheets of the PEC document. He repeats the steps that are gone through in a study initiated by a change request, and how the summary costs are broken down to component prices by cost engineering at NedCar to be compared with target cost. What is needed is a reconfirmation of ST responsibility, how far does it stretch in terms of negotiation with process? These “surprises” in the CRM meetings are nasty. Reflecting on what he has seen happen in CRM meetings (where the market side is represented and sometimes “underwrites” cost overruns that are justified from a market point of view) he points out that cost are “quite often” presented as “exclusive process costs” in project meetings. People cannot afford to wait 2-3 weeks for a response from NedCar. They try to cut corners.

The normal procedure is to make a “desk study” of a contemplated design change and you just need to know that it is not “unfeasible” before you go any further. NedCar does not give answers at such early stages. They demand a complete study request (on which they can base an invoice?) before they commit their engineering resources to a study. Such a complete request requires a lot of detail

on other aspects of the change. NedCar is not involved on the desk study stage. Of course Adam will react when a “study” is presented in a PMG meeting where he has not been asked to give an estimate of process costs! Maybe people avoid contacting him on early stages because they know he will say no.

Interior, who is fairly new in the ST position having worked on the DT level before, uses the word “frightening” in his description of the sequence, “and that Adam has the stomach to come here and say ‘never mind our process costs, you just run your project!’” Interior knows somebody in NedCar who told him that when the corresponding figures in the Mitsubishi column are released there are three Mitsubishi guys who really go to the bottom to check everything. In the case of Interior he got a lump sum for the whole ST, he asked for a specification and got a fax in Dutch, somewhat broken down but still not comprehensible on the DT level. He asked his contact in the NedCar organisation to help and a meeting was set up (for this morning) to get further details. It is OK to work with the subordinates of Adam but he kind of “shields” his department. You have to be really active to break through to the information, a good routine would be better. Take the situation Electricity took up in the meeting. He had got some cost information from NedCar on process consequences but final assembly cost were delivered at the end as a surprise. It doesn’t look too professional! You cannot just list the purchasing price for a component! It would be acceptable if NedCar managed this 110 % well, but it wouldn’t hurt if there could be some objective assurance that the estimates are correct.

He does not have too much experience yet, in his DT job it was mostly to exchange one component for another without any process costs, but he thinks that this year is the first with this lump sum budget document from NedCar for a project. It is a good thing that his contact in NedCar logistics helps him find the details, as a goodwill gesture. “People in NedCar are not unwilling to help, it is the outward face that is unwilling”.

Summary:

Two exchanges in two different car projects, some people participated in both projects, have been presented and analysed. In the first exchange the manager of an important sub-project that was intended to “catch up” with the main project,

tries to “discipline” the representative of the joint venture production control department by exposing his unwillingness to give feedback on the current position of the sub-project. The representative, Adam, responds with counterattack demanding “total information” before feedback can be given. The counterattack is successful in the sense that the initiator of the exchange promises to send the information “this week”. In the second exchange an ST manager also tries to “lift” an issue of information feedback across the joint venture “interface” by raising an issue while Adam is present in the meeting. Here the project controller assists in the attack using his knowledge of the rules to establish who has the budget power. It is obvious to everyone that he (the controller) is the one who checks the two sets of figures before the Volvo representative on the board of the joint venture signs the budget and releases the investment funds. These two exchanges are representative of a type of discussion that takes place, if not in every meeting, quite often.

In both cases there is a focused role, the one held by Adam, that is seen by other members as the Devil’s advocate. The confrontations aim to change the rules that constitute this role. An argument that is used in some comments is that they want Adam (sometimes generalised to “NedCar”) to act as a “team member”. Adam’s counter arguments suggest that the project should behave in accordance with the standards of professionalism represented by his organisation (and lean production). There seems to be two “team” conceptions in use and, as a consequence, an “interface” problem. It is interesting to note that in the second incident, where Adam may be said to be on the losing side, the controller intervenes with “superior” knowledge of the rules of the game and the location of power. The message is ‘if this is the kind of game you want to play I have a handle on the kind of power that really sets the rules’. How should this situation be understood?

First, the basic design of the experiment (Schweiger et al 1989) to determine whether Devil’s Advocacy or Dialectical Inquiry is the best method to promote creativity and learning is not matched by the field observations of product development teams in an alliance setting. It is not that a “real life” situation should be expected to conform to an experiment but it is the discovery that the frustration aired by project members comes from the fact that this Devil’s Advocate (Adam)

plays the game according to other rules (Garfinkel 1963). The co-operative game of consensus-seeking concerning the best way to design a car is confronted with a competitive game of who is in control. Garfinkel (1963) found that great energy is expended by participants to restore the game when its constituent rules have been breached. The rules of the game give rise to “constituent expectancies”. It is those constituent expectancies that binds the participants to the discipline of the game. Consistent action under the rules generates roles (Jönsson 1998). Mutually constituted roles form a team. There seems to be reason to draw the conclusion that a Devil’s Advocate role serves the purpose of improving the quality of decisions when that role is formed in the team. In this case the role is based in a different logic (lean production) than that of the team, and it seems to stimulate, at best, a need for rule making, which is indicated by an oscillation between different frames of argument or different “footing” of the discussion.

Second, both initiators of the exchange in these two sequences demonstrate frustration with “how things work” in their recent experience. In both cases Adam explains that understood on a different footing (“total information,” and “basic plan” respectively) the situation is obviously a consequence of project members not conducting themselves according to the norms of lean production – and the remedy is to change behaviour. The counter argument from the project is that their responsibility for the design includes all cost consequences and thus feedback is required. In the first sequence Bertrand finds himself “trapped” by his own argument and promises to send the minutes from his meeting to Adam “this week”. In the second sequence the controller intervenes to demonstrate that there is a still higher hierarchical level that may be activated. In this way the oscillation between “footing” - which game is going to be played – leaves issues undetermined by the meeting. Goffman (1974, 1981) discusses changes in “footing” as changes in alignment to those present in a conversation which are signalled by speakers by “code switching” or less obtrusive markers like pitch, volume, emphasis etc. This latter reasoning implies that the starting condition is one of conversation as a co-operative game where there is (implicit) agreement on the rules of the game. Both sides assume that the game is to be played within their set of rules.

The “solution” to the problem illustrated by the sequences was that Adam was promoted to a higher position in his own organisation and his place in the projects was taken by a more junior person with experience from working in both organisation. Communication then became much easier and project members expressed satisfaction with the new situation. Still, there were a couple of project members that pointed out that they were not really effected by the problem with Adam since they had their own informal channels into the appropriate people in the NedCar organisation and could get hold of the information they needed that way. It was the newcomers who had the problems because they thought they could work according to the rules of the game from the parent company. But they will learn – the hard way. In the meantime the site manager for the parent company had set up a work party to up-date the manual for the procedures of product development work in the alliance. Not only had the modes of interaction with NedCar changed as a consequence of experience, but the interface with the alliance partner needed attention. Several joint committees were always in place, standing ones as well as ad hoc committees for specific purposes. From the beginning there was a strong emphasis on maintaining as large a proportion as possible of common components in the name of economies of scale. However, as new year models were developed by both parties it is inevitable that priorities differ. The procedure is that if either party wants to start an improvement project (e.g., on the brake system) it is polite to ask the other party if they want to participate, if not one party may go alone and the proportion of common parts declines. If the deviating parts work well it has been known to happen that the other party is allowed to join after the work has been done and then at a negotiated price. The “point” of this comment is that there is a permanent interface problem in alliances although it is a dynamic one, one solved interaction problem may generate two new ones. Fence-mending and procedural improvement are activities that require people with patience and diplomatic skills.

An attempt at a complementary analysis.

Could these situations have been dealt with differently, and if so how and why? In order to provide an answer we need to look at the exchanges from a different perspective. First consider whether an organisation could be understood as a narrative. We understand action in the organisation in relation to a strategy that lays out a series of transformations of objects of value operated by actors (Cooren

2000) to accomplish some intended goal or task. This strategy is a macro-story that is broken down into tasks that form action networks (Czarniawska 1998). Each train of action has a (emergent) narrative form that can be described by a general narrative schema (Greimas 1987). The argument of Greimas is as follows: There is an initial tension between subject and object that immanently structures each narrative. There is a subject in each narrative who wants, needs, wishes for an object. That quest translates this initial tension into a mission or project and introduces a time dimension. The narrative contains two basic types of utterances, those describing a state and those of doing. Value is attached to objects by associating these two kinds of utterances. Cooren (2000, p. 69) gives an example: "Thanks to the key that George gave him, John could open the door". The capacity to open the door is linked to the key. There are four modal objects linking objects of value to action

- being able to do (pouvoir faire)
- having to do (devoir faire)
- knowing how to do (savoir faire)
- wanting to do (vouloir faire)

These modal objects, for example "being able to do", do not have to be reduced to physical objects but apply as well to discursive object. Greimas arrives at a canonical narrative schema

Figure 1. Canonical form of narrative schema (from Cooren 2000, p. 71)

Manipulation	Competence	Performance	Sanction
- wanting to do - having to do	- being able to do - knowing how to do	- doing	Recognition of performance

The four phases are illustrated by the James Bond story "Bond is asked to recover the secret plans stolen by SPECTRE. Thanks to Q's gadgets, he gets them back and is rewarded by M"

Manipulation phase: M gives a directive ("having to do") to Bond (to do = to recover the secret plans stolen by SPECTRE). Bond accepts the mission (commitment).

Competence phase: Q gives Bond various gadgets (“being able to dos”) and instructions about how to use them (“knowing how to dos”)

Performance phase: Bond gets the secret plans back from SPECTRE (the test) and gives them back to M (gift).

Sanction phase: M rewards Bond for his heroic performance.

The organisational narrative, for example a project, is understood as well as produced with the help of this canonical form. At each stage sub-missions can be inserted using rhetorical devices that may secure acceptance. Actors then try to do things with words (Austin (1962/1975). Cooren (2000) develops a more modern version of Speech Act theory as developed by Austin and Searle (1969) with a typology of speech acts each type with a specific set of conditions of production. For example a commissive (a promise):

- has the illocutionary point of “committing the speaker to a future action”
- has a propositional content that represents a future course of action
- starts from the premise that the speaker is able to carry out that action
- shows that the speaker is sincere in the sense that she or he intends to carry out the action.

It is obvious that the three last conditions (taken backwards), that the speaker “wants to” and “is able to” carry out the future course of action described fits very well into the canonical narrative schema given above.

Given that we have a typology of speech acts the question remains how the actor accomplishes an “insertion” of a sub-mission into the mission narrative. In order to be successful in such an insertion an actor must understand what discursive objects are in circulation and in what ways they are likely to transform other agents and recipients. It is then necessary to realise that the act of uttering something is an act of production of a text unit that is immediately separated from the speaker and starts to do things to recipients and other agents as they attribute meaning in the communicative situation that has been opened. Attribution of relations appear in the working out of meanings of the text, if it is the boss that makes the utterance it will be treated otherwise than if it is an underling (cf. categorization analysis, Sacks (1992), Lepper (2000)). The text mediates between actor and recipient and thus ties people together. Cooren (2000, p. 157), referring

to Perleman and Olbrechts-Tyteca (1969), maintains that there are but two argumentative techniques that allow the rhetorician to achieve the desired change, persuading the other, association and dissociation. These can be illustrated by an argument about whether a subject X has the right to do Y. The rhetorical technique may then be to associate or link the right of X to do Y with the accepted right of every Z to do Y by an enthymeme (or practical syllogism):

Major Premise: Every Z has the right to do Y

Minor Premise: X is a Z

Conclusion: So, X has the right to do Y.

This structure, that we know so well, must be reconstructed from the argument in analysis. The argument is developed and performed in a way to suit the context. The links between X and Z can be of many kinds (for example analogy). Dissociation may be illustrated by the minor premise: "X is not a Z". The criterion for success for the actor is that the recipient accepts the argument and its implications. A situation may be considered "rhetorical" if, 1) there is a controversy, 2) if there is an audience (to be influenced) present, or 3) if there are some constraints (a universe of beliefs, traditions, facts etc.) that the rhetorician has to take into account when building the argument. Sometimes there may be institutional procedures, contracts or the like, that do the persuasion silently, as it were.

The rhetorical devices generate the discursive objects ("wanting to do" etc in Figure 1 above) that mediate relations between speaker and recipient in an interpretation that relates the text to con-text. A promise ("commissive") is a promise only if it has been understood as such by the recipient(-s) and the speech act of the type "commissive" has the following characteristics (Cooren 2000, p. 132 ff):

- the point is that the speaker commits herself or himself to a future course of action
- the propositional content of the text represents a future course of action of the speaker
- the speaker is capable of carrying out the action and intends to carry it out.

Given that the recipient, according to the sincerity condition mentioned above, finds that it is reasonable that the speaker is competent and willing to carry out the action (discursive objects “wanting to” and “being able to do” in Figure 1 above) the first phases of a narrative are in place. The recipient can see a manipulation phase (“wanting to do”) and a competence phase (“being able to do”) and can complete the narrative from the speaker’s description of future action. Closure of the narrative is achieved by adding the sanction phase, which will recognise the promise as such and accept it. The text – the promise – has a quality of “restance” (Cooren 2000, p. 123 referring to Derrida) that, for instance, may influence how the role or identity of the speaker will develop. The text does not only do its thing here and now, but lingers on in the organisational structures that the relation established by the promise may contribute to, like the signature on a contract that is constricting behaviour for a period of time.

If we look at the exchange on page 9 where Bertrand is trying to get Adam to change his ways and, if not participate in the meetings he is regularly invited to, give feedback on the release situation from his side regarding the new engine. The “problem” is that Purchasing is subordinated to Adam and they have to confirm delivery dates, prices etc. for components with suppliers before a design solution can be declared done. The context at the moment Bertrand poses his question (what is the situation today compared with last Friday according to you ; Bertrand knows that the information is on Adam’s desk) is that Adam has finished his report on the state of Production Control in relation to the project’s production start. As usual he has requested more detailed and accurate information about the release situation (confirmed releases form the basis for firm Production Control Plans). As he, Adam, is leaving the head of the table after having exhorted project members to provide better information as a basis for proper judgement by Production Control of effects or status of the releases, Bertrand seizes the opportunity to confront Adam. He opens a communicative situation by defining the situation as a “question” and then gives a few background indicators (situation last Friday, information exchange since then, persons involved) and then asks for an “assertive” on what is the situation today (Obviously, Bertrand is signalling that he wants Adam to answer – thus the question is a “directive”). This request can be used to test sincerity since the conditions of satisfaction/success of a speech act of the type assertive are:

- that the speaker is “representing as actual a state of affairs”
- the speaker has reasons or evidence of the truth of the propositional content
- the speaker believes the propositional content

If Adam accepts to answer the question that answer must satisfy these conditions. If his answer does not satisfy the conditions Adam will be insincere. Adam sees the implication and refuses to answer with reference to his need to check the facts after the meeting (this means that he is sincere in the sense that he demonstrates his will to base his response on current facts).

Bertrand comes back with a directive/request for Adam to provide the information today (top of page 10) and then gives a context justifying his urgent request for current information – Adam has the habit to let things sit and upon request tell project people “No, impossible!” at which time valuable time that could have been used to correct things has been lost. Adam’s counter-argument is that he cannot do anything until he has complete information – it is irrational to plan in bits and pieces. Only when all components are in place and delivery dates are confirmed can a plan be set, including logistics, quality check etc. So he asks for “releases” (complete and confirmed component design changes), “total information”, and “overview”. Bertrand responds that he does that (an “assertive” claiming to “represent an actual state of affairs”). Adam claims that he does not have any report on the total release situation (“actual state of affairs”). When can he have it? Bertrand responds that he can pick that report up every GDI-meeting, (GDI is the name of the engine project) on Tuesdays. Now we have identified the cause of the discrepancy between the assertives about “actual states of affairs”! The minutes can be picked up at the meetings or via the intranet system. Adam does not go to GDI-meetings and wants the minutes sent to him. Bertrand promises to send the minutes “this week” and then returns to the main issue. Adam’s claim last Friday that 13 parts were problematic is not valid, Bertrand can accept that one problem remains unsolved.... In the series of assertives in a confrontation on who is sincere Bertrand finds himself on the retreat since Adam’s focus on formal documents overtakes Bertrand’s focus on “real” problems in a contest on what assertive has the best backing and thus is the best basis for a claim to sincerity.

This exchange illustrates that the “constitutive rules” that provides the conventional meaning of the different types of speech acts (in this case assertives) can be used as political instruments: If Adam does not respond properly to the question about the current state of the project he will appear insincere before the project and the project leader. However, what is to be considered “properly” differs between the two main actors in the sequence. For Bertrand proper response from Production Control (including Purchasing) is to confirm that the problem is solved component by component because that is how you work. You have a list of 13 components with remaining “problems”, you reduce the list by solving one problem at a time, and you need confirmation that this is also the “actual state of affairs” for the organisation that is taking over at production start. For Adam the crucial issue is production start which requires that all components are in place in the right time, number and quality. The reference is to the complete list of components and if one component is not confirmed the project is not ready for production start. “The actual state of affairs” is that the project is not in line with plans until all problems are solved. Adam’s counter-request is for “an overview of the complete release situation – total information”.

It is obvious that this exchange was inconclusive and that the reason for this is that the actors forgot a basic rhetorical principle, to align (association) the argument with an object of value already accepted by the recipient. One such alignment attempted by the project leader, twice on page 11, is the reference to “feedback” – no one can object to giving feedback . Bertrand should have referred to the fact that “total information” emerges as one detail after another is added to the list of solved, and that Bertrand himself only has “total information” when Adam has confirmed that the proposed solution is registered as feasible. Adam should have spelled out that the point is to move the whole project towards production start and that one continuously need to watch the details in terms of their contribution to the whole. It can be claimed that both parties fail in their rhetorical undertaking to make the other party change their ways because they fail to align their argument with values or principles already accepted by the recipient. Acceptance being the key factor in this case. (It should be noted that in the second exchange (p. 26 ff.) the discussion concludes with the controller referring to the formal rules of the budget process. This is an assertive and Adam can confirm that the speaker is

sincere and has the evidence required. This time there is an alignment of the argument with accepted rules.)

Conclusion

This attempt at analysing the role of confrontation in project management started out from the assumption that there is a relation between conflict (or critical argument) and creativity (or the quality of decisions). The problem of “group think” in a team could be avoided by building “programmed conflict” into it. Tongue in cheek, we find a natural experiment of that kind when production representatives are members of a product development team. That function (opposition to changes in project content) may be strengthened by the fact that the production unit is a joint venture in an alliance under strict lean production cost control. However even if experiments by Schweiger et al (1989) could show an increased quality in decisions under conditions of programmed conflict we have observed largely inconclusive effects of confrontations in two year-model projects in the car industry. Two illustrative exchanges were analysed.

In the first situation (1998 year model of the small Volvo) the engineer in charge of managing the added GDI engine-project to catch up with the main project is confronting the Production Control representative to elicit better feedback support component by component in order to be able to focus on problems rather than wait for confirmation of whole lists of components. Adam, the Production Control representative, admits that he is not up to date on the situation, but manages to turn the heat around and make the GDI engineer promise to send the minutes from his meetings. Whatever the real intentions of Bertrand, the GDI engineer, they seem not to have been realised. The explanation presented in the final, alternative discussion of the paper, is that Bertrand did not align his argument with values or principles that the recipient has already accepted. By not applying the rhetorical device of association a “glitch” was generated. Hoopes and Postrel (1999) define a “glitch” (from Yiddish “glitsh” – slippery area) as

“an unsatisfactory result on a multi-agent project that is directly caused or allowed by a lack of interfunctional or interspecialty knowledge about problem constraints” (p. 843)

In the second example (from the 1999 model of the small Volvo) the engineer responsible for Chassi and Installation complains about being surprised at a resent CRM (Cost Review Meeting) about cost estimates for process costs not reported to the project until the CRM. This is a problem since, according to Volvo norms, the engineer in charge of a ST (System Task) is responsible for all cost consequences of design changes and, obviously, must have all such information when taking the decision. When the Production Control representative evokes formal rules (p. 27 "I don't report to DTs, not even to STs") the controller seizes the opportunity to align the argument with formal rules by pointing out that if the requested information is not available, he, as assistant to one of the owner representatives on the Board of Directors of the joint venture, will not be able to attest the cost budget of the joint venture. However, the speaker, who raised the issue, missed the opportunity to extract a promise of changed behaviour. What do these observations imply?

If these sequences are accepted as representative of, if not product development projects in general, argumentation in the two car projects observed over a two year period, the following comments may apply over a wider range of exchanges in this kind of large projects:

1. The communicative situations opened in these efforts to achieve change by confrontation impress the observers as "incomplete" in the sense that much context is needed to complete a recipient's understanding of the utterances.
2. As participants "complete" the situation by drawing upon relevant contexts, attribution of relations between actors via objects (including "discursive objects") seem to be highlighted initially (especially if the interpreter is included in the relation). Spectator views of the exchange are less differentiated than the views of those (insiders) who are included in the narrative.
3. Closure of the exchange (or narrative) in the form of acceptance of the implications of the utterances might be explained by the type of rhetorical device the speaker uses to align his/her argument with values or principles already accepted by the recipients.

4. Acceptance is the key to the collective building/realisation of the narrative called the project X.

However, there is always the basic problem with assumptions about intentionality. Derrida (1977), as cited by Cooren (2000, p. 36 ff.), pointed out that intentionality was fundamentally undecidable from the text. Because the constitutive rules, as developed by Searle was used to determine the conventional meaning of an utterance, those same rules could be used to “veil” real intents and the recipient, who has no way of determining the difference. If the speaker says “I order you to deliver a revised version of this manuscript by dawn tomorrow” with an ironic wink, which is an iterable and repeatable form of expression, the hearer is pointed in a direction to interpret that the speaker is not serious. In that sense the wink “unveils” the speaker’s non-seriousness, but at the same time the hearer is at a loss as to what the “real” intentions of the speaker are. We have a form of indirect speech where the hearer has to work out the implications by applying con-texts that are judged relevant. This leads us to question whether the speakers’ intentions (Bertrand’s and Charles’) in the two exchanges analysed here were really the ones they stated; to get Adam and his department, to put more effort into giving current feedback on process consequences of proposed design changes. Instead the primary intention might have been improved status for the speakers in the team. Evidence of this is an analysis of another sequence where Charles appeared as speaker (Jönsson & Edström, 1999a) protesting a change of time plan negotiated by the project leader (with the alliance partner and joint venture representatives (including Adam)). The emotions were so overwhelming that Charles, a natural English speaker, lost his language, began stuttering, and tore the sheet of paper where the new plan was printed. This gesture, tearing a piece of paper, or even tearing a “virtual” piece of paper, was thereafter used occasionally in project meetings to demonstrate protest without words. When this scene was played back to Charles with the question “What is going on here?” his first comment was that he was pleased that he was the one who articulated what everybody felt. The same comment was given by other participant Charles had said what team felt by that gesture. His goodwill in the team had improved. It seems like the team need maintenance communication and this is best done at the interface. By confronting that outside the coherence of the team is enhanced. But, constructively, it is also at the interface that the most need for rule-making

appears. The obvious consequence of the exchange on the CRM surprise in sequence 2 (page 26 ff.) is to set up a work party to review budget procedures concerning effects of design changes in incoming models. In this perspective the exchange signals a need for formal rules to regulate the information flow across the interface between two or more units with differing “rules of the game” (ways-of-working).

Confrontation, thus, cannot be seen as a single-function remedy against the “group think” syndrome. It has side-effects internally in terms of maintaining, improving, or changing team relations and roles, and it also has signalling effects in terms of indicating a need for rule making at the interface with the environment. Here one can see a specific role for the project controller (Jönsson & Edström 1999b). The problem this analysis has uncovered is that there is a problem of polyphony in communication in large projects like development of car models. Polyphony is not only a matter of many voices speaking at the same time. Many con-texts are evoked in interpretation of arguments and the meaning of an utterance is only to a limited extent under the control of speaker intentions. The rules of the game, emanating from the ways of working that different communities bring into or in contact with the project provide a basis for the establishment of conventional meanings (like tearing up a piece of paper means protest in one of the projects). When the work according to a specific way of working is hampered by communication problems confrontation may indicate urgency (I really need this kind of information), but also team building activity as well as an opportunity for the controller or a member of the project leadership to initiate a rule making project. The researcher needs a longer period of close observation to be able to discern this polyphony.

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