"IT WAS A WAR THAT WORE OUT BOTH MEN AND WOMEN..." - METAPHORS IN AN INFORMATION SYSTEM PROJECT

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Complete Research

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Abstract

This study looks at metaphors from the perspective of cognitive metaphor theory. Using the theory developed by Lakoff and Johnson (1980) we examine the use of metaphors by project members in an information system (IS) project. The data was collected from 22 interviews. Interviews were conducted with a range of stakeholders, including representatives of users, software developers, experts and IT and service managers. The findings of this qualitative case study indicate that IS developers and experts use many kinds of metaphors to make sense of the IS project they work on. The findings also show that metaphor is pervasive in IS development work, not just in language but also in thought and action and various metaphors are used to make sense of the different phases of the project. It can be argued that the dominant metaphors of any given project will strongly affect the trajectory of the project. Thus the metaphors in use in a project should be a concern for project management and we suggest that emphasizing constructive metaphors could be beneficial for many projects.

Keywords: Metaphors, Metaphors in IS, Cognitive metaphor theory, Qualitative case study

1 Introduction

Metaphors are considered to be poorly understood phenomena in the Information Systems (IS) field (Schultze and Leidner, 2002). Nonetheless, during the past 30 years a number of studies have been conducted on metaphors and their role in information systems development (ISD) (e.g. Heiskanen and Similä, 1992; Hirschheim and Newman, 1991; Ives and Learmonth, 1984; Jones, 1995; Kendall and Kendall, 1993; Madsen, 1989; Robey, Wishart and Rodriguez-Diaz, 1995; Schultze and Leidner, 2002; Walsham, 1991). Several studies (Hirschheim and Newman, 1991; Kendall and Kendall, 1993; Schultze and Leidner, 2002; Smolander, Rossi and Purao, 2008) have revealed that metaphors have 'true power' to shape reality and thoughts of the people who are caught up in a particular behavior. Kendall and Kendall (1993: 149) stated for example that: '*If we rejoice in the fact that the company's reputation is soaring like an eagle, or warn that an executive will go down with the ship, we have used*

metaphors to expand the understanding of the listener and have empowered them to see the world differently.'

A detailed examination of metaphor was first conducted by cognitive scientists (Lakoff and Johnson, 1980). They suggested that metaphorical concepts are essential to thought - without metaphors we could understand very little beyond our direct physical experience. They demonstrated that human conceptual system is metaphorical in nature: we think by metaphor and act accordingly. They also showed that metaphors have power: *'each metaphor highlights certain aspects of the concept and implicitly hides others'* (1980: 201). The goal of this research is to use cognitive metaphor theory as a lens to understand metaphors used in an IS development project. This provides an alternative view on how people make sense of ISD projects and is useful not only in thinking about language used in such projects, but also in trying to understand the complexities of metaphoric thought patterns. Metaphors can be argued to be particularly important in IS projects because of the inherent ambiguities that stem from developers, users and implementers all having different orientations towards the project (cf. Hirschheim, Klein and Lyytinen, 1996). Metaphors are, thus, needed to frame and make sense of the project – in short, decide 'how things are around here' and how to behave accordingly (cf. Nicholson and Anderson, 2005). Specifically, the research is guided by the following question: *How does cognitive metaphor theory help us to understand sensemaking in an IS project?*

The contribution of this paper is twofold. First, we describe common metaphors used in an IS project, providing an overview of the colourful language used to make sense of a development project. Such an overview gives an idea of the kinds of figures of speech and dominant ways of thinking characteristic to IS projects. Second, we demonstrate how participants link key metaphors to broad phases in project lifecycles, such as reflecting on past project experience, beginning of the project and envisioning the future, dealing with pressing current issues, etc. These links allow us to speculate about the potential trajectory of the project.

The paper is organized as follows. In the next section, we present the definition of metaphor, the basic ideas of cognitive metaphor theory (Lakoff and Johnson, 1980) and the approaches that have been adopted by IS researchers for studying metaphors. The following three sections present the research case, the research method and our findings. In the final sections, we discuss our findings and conclude the paper.

2　Literature Review

Relevant literature on the paper topic is discussed in this section: the definition of metaphor, the basic elements of cognitive metaphor theory (Lakoff and Johnson, 1980) and metaphor studies in IS field.

2.1　Definition of metaphor and the key aspects of cognitive metaphor theory

Metaphor is seen as *'a way of thinking and a way of seeing that pervade how we understand our world generally'* (Morgan, 1986: 12) and as cognitive lenses we use to make sense of different situations (Kendall and Kendall, 1993). The essence of metaphor is that some issue is understood and interpreted in terms of another (Lakoff and Johnson, 1980). Typically, metaphors help us understand a more abstract conceptual domain (such as 'life' or 'time') in terms of a more concrete and familiar one (such as 'food' or 'journeys'). So, for example, we often make sense of undesirable sequences of events in life as *'losing our way'*, implying and hoping that it is always possible to find the right way again. Lakoff and Johnson explain the nature of metaphor: It is not only for 'the poetic imagination' or 'the rhetorical flourish' – a matter of extraordinary subconscious language; it is abundant in everyday language, thought and action. Thus human conceptual system plays a critical role in defining everyday realities. Lakoff and Johnson (1980) go as far as to argue that human experience and action are very

much a matter of metaphor. As a result, in much of our everyday life (i.e., outside of 'poetic' contexts), we rely on metaphors and other figures of speech without really noticing them. Such transparency can numb us to the fact that these linguistic devices maintain our implicit agreement to the dominant ways of thinking in our society (Chandler, 2002; Lakoff and Johnson, 1980).

Lakoff and Johnson (1980) present metaphors in capital letters to highlight the focus on *concepts*, rather than just words. For example, the relationship between time and money is described in their notation in the following way: 'TIME IS MONEY'. We adopt this notation style in our paper as well. In language, the metaphor 'TIME IS MONEY' is visible in the ways people talk about time using the same terms as when talking about money; for example, *'please do not waste my time' and 'I've invested a lot of time in her'*. This leads to a perception that we can waste or save time like money. Such statements are so commonplace in our everyday life that we hardly notice the peculiarity of thinking about time in such a way and rarely question the implications.

2.2   Metaphor studies in IS

In the IS research literature, various approaches have been taken to studying metaphors. Two lines of research are particularly relevant for the purposes of this paper: 1) studies looking at particular metaphors (e.g., gatekeeping) to understand the process of ISD (Heiskanen and Similä, 1992), and 2) studies utilizing various frameworks (Schultze and Leidner, 2002) or theoretical lenses (Hekkala, von Hellens and Newman, 2012; Walsham, 1991) to understand issues in ISD through metaphors.

Particular metaphor studies have tried to explain, for example, relationships in ISD work. Heiskanen and Similä (1992) chose a gatekeeper metaphor to understand the evolution of the interaction patterns between software developers and users. Kendall and Kendall (1993) investigated the language of IS users in 16 organizations. They identified 9 metaphors (journey, war, game, organism, society, machine, family, zoo, and jungle) and suggested that most of these metaphors are commonly used in systems development methodologies. Metaphors like *'Blueprint', 'Literature', 'Language' and 'Decision'* were identified by Smolander, Rossi and Purao (2008) as part of the vocabulary *"that stakeholders use to understand the term software architecture, which in turn, allows them to effectively participate in its creation and use."* Hirschheim and Newman (1991) have discussed ISD through three different metaphors: ISD as a battle, organizations as fiefdoms and man as a machine. Other studies in the IS field have also used 'war' as a metaphor: for example, information systems have been seen as competitive weapons (e.g., Ives and Learmonth, 1984).

Studies utilizing various frameworks or theoretical lenses to understand specific issues through metaphor have focused, for example, on issues such as knowledge, organizations and the experience of project members in IS contexts. Schultze and Leidner (2002) used Deetz's (1996) framework of discourses in order to identify metaphors of knowledge (knowledge as object, asset, mind, commodity, and discipline) in information system research. They argue that a better understanding of the prevalent discourses and metaphors in knowledge management can enable the capture of underlying assumptions people have about knowledge and about how IS should support knowledge management in organizations (ibid.). Walsham (1991) utilized the work of Morgan (1986) to analyse the conceptualization of organizations in information systems research. Morgan (ibid.) presents eight metaphors for organisations: organisation as machines, organisms, brain, cultures, political systems, psychic prisons, flux and transformation, and instruments of domination. Walsham (1991) highlights that there is a need to deepen theoretical views of organizations in the theory of information systems as well as a need for a wider variety of metaphors, beyond mechanistic and organismic ones. Dramaturgical theory (theatre metaphor) developed by Goffman (1959) was used by Hekkala, von Hellens and Newman (2012) in order to analyse how experiences of project members in an IS project are organized in terms of recognizable activities. Our study follows the first line of research and explores particular metaphors used to make sense of an ISD project.

3 The Research Case

The broader aim of this study is to understand issues that make public sector information systems development difficult through a study of a planned new registrar system for three public sector organisations (Alpha, Beta and Gamma) in Northern Europe.

The goal of the new registrar system is to provide a centralized means of collecting customer information as well as to facilitate the dissemination of certain information back to the customers. In addition, the system should provide some web based self-service capabilities to the customers. Alpha, Beta and Gamma have decided to modernize their IS because the current registrar system, and the platforms it is developed on, are coming to the end of their lifecycles, and the present state of maintenance is difficult (because of functional, technological and processual issues). It is also easier to develop a new IS together because of budgetary constraints in all organisations. Bespoke development was chosen over buying a packaged solution because suitable packaged software – capable of meeting the specific requirements of public sector organisations - could not be found.

It is important to shortly describe the legacy systems at the three organisations to contextualize the current ISD project. The shared legacy registrar system of Alpha and Beta is outdated, requires a lot of manual data entry and information security is very poor. This is particularly problematic, because the system contains sensitive data. The legacy registrar system has been in use since the 1990s and has evolved during that time to further automatize and simplify data entry. These previous development projects are often referred to by our interviewees, most of whom have been part of all or some of these prior efforts to modernize the system. Gamma, conversely, has a different legacy registrar system, which works quite well. The reason why Gamma is participarting in the project is, thus, to provide a baseline for the new system. There are three different groups of stakeholders involved in the project: the project group, steering group and management group, each consisting of representatives from the three organisations. The roles these groups fulfill are described in Table 1.

4 Methodology

We have chosen a qualitative case study approach, examining a public sector IS development project. Data collection was initiated in February 2013, when we had a first meeting with the project manager. Our data collection consisted of 22 qualitative interviews conducted in the period March 2013 - April 2013. The first author of this paper conducted the interviews. All members from project group, steering group and management group were interviewed. In addition to this, we familiarized ourselves with the pre-work for the project, done in 2012. The interviews were between 20 and 90 minutes long (average 52 minutes). All interviews were recorded and fully transcribed. We analysed the data using cognitive metaphor theory (Lakoff and Johnson, 1980) as a lens to describe common metaphors used in the project.

Table 1 shows the interviewees, their roles, organisation and the group they belong to in the project. Most of the project members have one role in their home organisation and a different role in the development project. We noticed during interviews that there was significant confusion around the project roles and most members were unsure of what their specific tasks were in the project. The project members were - in understanding their role - guided by their division into three project groups. Table 1 reflects this situation and describes the role of different project groups, rather than that of individual project members.

PROJECT GROUP	ROLE	MEMBERS
MANAGEMENT GROUP	Members of the management group decide all personnel and budgeting issues. They guide other project groups and define general policies. It is also a duty of the management group to take a stand on issues, which project group or steering group are not able to solve. The members of the management group have different roles in their home organisations. For example, Ben, Ewan and Sean are IT managers and Lily, Kelly and Leon are service managers. In the project, Lily is the project leader and also a member of the steering group.	Lily (Beta) Kelly (Alpha) Leon (Gamma) Ewan (Alpha) Ben (Beta) Sean (Gamma)
STEERING GROUP	Member of the steering group guides the project group and try to resolve problems that have occurred in the project group. If the steering group is not able to resolve the problem, it is escalated to the management group. Steering group includes both business domain and technical experts. These experts have various different roles in their home organisations (customer relationship manager, IS manager, Software designer, etc.). Isaac from Gamma is acting in both steering group and project group.	Lily (Beta) Tyler (Beta) Erin (Alpha) Debra (Alpha) Eliza (Beta) Megan (Beta) Tracy (Alpha) Erin (Alpha) Janet (Gamma) Isaac (Gamma)
PROJECT GROUP	The aim of the project group is to find possible technical solutions and to make sure that the processes are defined and done by people who know the substance well. Includes the software developers and representatives of users. These individuals also have different roles in their home organisations (project designer, coordinator, user). Alex is the overall project manager for the development of the registrar system. He was hired externally to run the project, but is now paid by Alpha, so can be considered an employee of Alpha.	Alex (Alpha) Isaac (Gamma) Carol (Alpha) Jacob (Beta) Amber (Beta) Nathan (Beta) Chloe (Alpha) Nicole (Beta)

Table 1.   The project groups, their roles, and the organisations of interviewees.

5 Findings

We identified ten types of metaphors: 1) war and battle, 2) games and exercising, 3) nature, 4) family, 5) journey, 6) building, 7) illness and medication, 8) Bible and religion, 9) zoo and animal, and 10) food. Due to space considerations, we will consider the first seven in this article. First, we will describe and illustrate the different types of metaphors. Then we demonstrate how particular metaphors are used to make sense of different project phases, allowing us to link metaphors to potential project trajectories.

5.1 The metaphors of war and battle

This category describes metaphoric expressions like 'INFORMATION SYSTEMS PROJECT IS A WAR', and 'CHOICE OF VENDORS IS A MINEFIELD'. The interviewees used a lot of metaphors relating to war, in particular when describing previous project experiences, which had an influence on the current project as well. For example, Ben (IT manager, Beta) described one previous project as *"a war that wore out both men and women…many come along with a will, and after a while [become] absolutely worn out…"*. He also explained that they *"had a bad fight in one previous project and the*

legal professionals were marched to the meetings". According to Ben, the result of the decision about the whole project was to *"dig a big hole and bury it so deep that noone can dig it up again…"*. Ben also described that some choices of vendors in earlier projects have become like mines to them at the moment: *"in the heat of the moment we chose vendors who used technical solutions they were familiar with and now they are old and the solutions have turned out to be mines…"*.

In the new project, many interviewees related the choice of personnel and the sorting out of work responsibilities to *'occupation'* and to *'setting up border fences'*. The project manager Alex (brought in externally) described how his own hiring was retold to him in terms of *occupying* the project with key personnel: *"in preparing how to occupy the project, they could have found a project manager from some user organisation or they had to hire the project manager from outside these organisations* (like me)*…"*. Members of the management group also described the importance of strategic staffing of the project manager's working group as well as sorting out and putting *borders* between work responsibilities: *"in this occupation, there are some key persons - Isaac, Amber and Nathan* (from Gamma and Beta) *- with whom we need to support Alex"* (Ben, IT manager, Beta); *"there was already one internal crisis meeting within the project, they sorted out border-fences, distribution of work and responsibilities…"* (Ewan, IT manager, Alpha).

The idea of '*battles*' between different '*camps*' (organisations) was also prevalent. Alex commented that in the beginning of the project the three participating organisations each had their own 'camps': *"they [organisations] tried to draw me to their own camps…"*. Tensions between project members around different priorities were frequently described as '*fights*': *"to fight with some person like Jacob (*Software designer, Beta*) who likes new gadgets that others have not even heard of..." (*Ben, IT manager, Beta).

5.2   The metaphors of games and exercising

'IS DEVELOPMENT IS A GAME / EXERCISING' is the type of metaphor describing many expressions relating IS development to games, team sports, exercising process, or engaging in a hobby and competition that needs practice and physical preparation. The '*game*' metaphor was frequently used, for example, to describe many current issues in the new project, such as applying for funding, negotiations and teamwork between the partner organisations. Chloe (User rep., Alpha) tied funding applications to a game: *"we are a little bit novice in these issues, so we were not able to think about it in terms of how to play the game…"*. Leon (Service manager, Gamma) and Chloe (User rep., Alpha) highlighted the importance of teamwork:*"Da Vinci was the last one who was able to do issues alone but after that we have needed to do teamwork…"; "If there is only one person who has an important role and is reluctant to play with others, there is a very big risk that the job will not go well…"*. Other project members described dealing with difficulties in the project as arm wrestling: *"there will likely be some arm wrestling between Beta and Alpha…"* (Nicole, User rep., Beta).

The whole project was likened to a game. For example, Isaac (IS manager, Gamma) suggested that *"because the organisations have their own money and resources in the game there should be a real intrest to get results…"* Alex (Project manager, Alpha) noted that to get the best results organisations should be solving issues together but already after one or two weeks after being hired as the project manager he saw that there were*"big feelings in the game… (and not everything was going smoothly between the partner organisations)"*.

5.3   The metaphors of nature

Some of the metaphors of nature and weather include 'ISD CREATES A WORLD', 'ISD WORK ENVIRONMENT IS NATURE' and 'INFORMARTION SYSTEM IS A LUMP OF CLAY'. Thinking of ISD as a natural phenomenon creates an image that an entire world is being created or

molded, but also the image that setbacks/misfortunes are of the same kind as natural forces (with very little that humans can do to control them).

Particularly during the beginning of the project, project members tied ISD work to creating a '*world*'. Ben (IT manager, Beta) described that *"after some hot/passionate discussions we just decided that we need to act now; the world will not be ready by waiting…"*. Amber (Software designer, Beta) highlighted the dynamic nature of ISD work as similar to how natural forces function: *"I wish that there would be a possibility to do a project, so that the things would be done correctly right from the beginning…. we should not just define something on paper for one year now, because the world does not work that way …"*.

Many of the users in the project group also described their work in terms of unpredictable forces of nature. For example, Nicole (User rep., Beta) tied her uncertainty to drifting:*"other people know what they need to do in the project but I'm drifting. I don't know if we should work on processes, or decide the technique or to do an user interface plan first…"*. Nicole thought that she *"was going in waves*" because of the lack of guidance and clear roles. Erin (Domain expert, Alpha) described conflicts between groups in the steering group as lightning and her role *"as a lightning conductor between these two groups…"*.

Finally, the information system itself was likened to a lump of clay that can be molded in many different ways. Kelly (Service manager, Alpha) described that with three different organisations involved there is a danger that *"people in different organisations will continue to mold their own clay lump…"* and will not be able to take into account the needs of other organisations.

5.4   The metaphors of family

The metaphors of family and home also came up frequently in interviews. The subject matter includes issues like marriage, family, home and relationships. Metaphors like 'PROJECT MEMBERS ARE A MARRIED COUPLE' and 'IS PROJECT GOES FROM HONEYMOON TO FIGHT' emerged. The metaphors of family and marriage naturally gave rise to a rather different image of the project than for example the metaphors of war.

The metaphor of 'child' was used to refer to, for example, the established routine processes in each organisation. These routines were often used as a comparison point for suggesting processes for the new IS. This led the project partners to recognize that they needed to give up their 'favourite children' in order for the project's common goals to work: *"we have to have common ambitious goals and that means that we need to give away our blue-eyed boys…"* (Kelly, Service manager, Alpha).

The new project was often described as a 'honeymoon' in its early stages. Tyler (Domain expert, Beta) described the beginning of the project as*"a honeymoon, everything seems so rosy, but we should have clear terms of agreement (about what to do when the 'honeymoon' is over)"*. The idea of honeymoon creates an image of an easy start and a bright future, but also a clear understanding that the honeymoon will not last forever and that unexpected challenges are likely to be encountered:*"It will be very interesting if you'll interview us after one year, what I'm going to say then, how well the year went and how these first months of the marriage [laughing] have been so rosy and then after one year we are having a bad fight [laughing]…"* (Nicole, User rep., Beta).

Starting the project was then described as dating or marriage. Alex (Project manager, Alpha), for example, suggested *"that in many situations there have been comments that now we (Alpha) are having a possibility* [to decide on issues so that they are more favourable to Alpha*, whereas Beta is 'flirting' with him so that he would look at the issues from their perspective]: "I represent more Alpha but Beta is 'cozying up to' me…"*. Chloe (User rep., Alpha) highlighted how travelling and social events lead to project members to grow closer together as a family: *"when we will go for a drink, we*

are getting to know each other… […]; when you travel with others, we get to know each other and we laughed that we are like married couples…".

5.5 The metaphors of journey

Some of the metaphors of journey include: 'INFORMATION SYSTEM IS BAGGAGE', 'ISD WORK IS A PATH', 'ISD WORK IS A MOVING TRAIN', 'ISD WORK IS BACK TRACKING'. Journey type metaphors were common for describing the past, present and future of the project and created an imagery of continuity. For example, the earlier project work was compared to baggage, suggesting it was considered an inconvenient weight: *"We improved, improved and improved… all interface work had to be done quickly and it became such a baggage…"* (Debra, Domain expert, Alpha).

Looking back at the old project seamlessly led people to reflect on paths and choices taken to arrive at the new project: *"we have come a long, long way and we have a possibility to create a very good system…"* (Leon, Service manager, Gamma). The future of the new project was then also seen as a journey. For example, Ewan (IT manager, Alpha) described that *"there will probably come some challenges on the way, because we have chosen our own* (bespoke development) *path…"*. Ben (IT manager, Beta) and Kelly (Service manager, Alpha) highlighted that it is important for the project members to go down the same path together: *"I hope that everyone would have an open mind and they would not get bored of negotiating and will not leave to go down their own paths…"* (Kelly, Alpha).

Current project work was also compared to keeping the train on the rails, selective greenlighting and backtracking if necessary. Kelly (Service manager, Alpha) described the present situation on development work as *"the train is just leaving the station and to make sure that the train will stay on track it is decided that Lily will be a chairman both in the steering and management groups"*. Amber (Software designer, Beta) noted that a good way of developing the IS would be through trial and error, i.e., doing bits and pieces, possibly failing in some cases, backtracking and doing it again until a solution is found. She added that if they work in that way from the beginning then *'back tracking'* will be quite small. Tyler (IT manager, Beta) indicated at the complexities of managing the project by comparing it to managing traffic flows where 'green lights' for everyone are not possible: *"There will definitely be many kinds of feelings and annoyance, because there is not a possibility to show green lights to everyone…"*.

5.6 The metaphors of building

Metaphors of building were also quite common among the project members. These include, for example: 'ISD IS AN ETERNAL PROJECT', 'ISD WORK IS DIFFERENT THAN HOUSE BUILDING', 'ISD WORK IS HOUSE BUILDING'.

The previous system was often compared to an unstable building in need of renovation. For example, Ewan (IT manager, Alpha) described the legacy system as *"a contraption, which is built by using gum and elastic band…"*. Nicole (User, Beta) used the term *'renovate'* when she described the need to develop the present system. Despite its problems, the building process of the old system was compared to the impressive feat of creating *"Saint Isaac's Cathedral"* (which took 40 years to complete) (Kelly, Service manager, Alpha).

Current project work was both likened and contrasted to house building. For example, Amber (IS developer, Beta) described that *"drawings can be ready to the level of nuts and bolts in a house building project, but software issues are different; it is not possible to know everything in the beginning and that's why it is very difficult…"*. On the other hand, Ewan (IT manager, Alpha) thought that ISD work is like building a house: *"instead of wires bolted to a wall, there are plugs and*

depending on situation it is possible to change what we use. The situation is the same here; we need the same kind of planning paradigm for this…".

5.7 The metaphors of illness and medication

The project members also used metaphors of illness and medication. Such metaphors described the ISD process as an issue that can produce pain or make someone ill. For project member's, thus, it appeared as though the 'STEERING GROUP MEETING IS A DOCTORS' CLINIC'. Lily (Leader of the project, Beta) described this as follows:*"I've had a feeling in some steering group meetings that it is like I'm at a doctors' clinic, and there are two doctors and I'm having a serious illness. And one doctor says that you need to take these green tablets and another doctor says that you need to take the red tablets…I don't have a competence to evaluate which one of these doctors is right…it causes huge insecurity… And the truth is that nobody can know because the development of technologies is so fast. The decision about which pills I should have taken can only be evaluated afterwards…"*

As the project progressed, members reflected on the 'pain' and 'horror' endured: *"It is always said that knowledge increases pain, that the more you know the more you feel that it wasn't that easy…"* (Alex, Project manager, Alpha). Chloe (Project designer, Alpha) tied the ups and downs in the project to balancing the feeling of horror. She felt that at times *"it is the balance of horror"* when she swings from thinking like they will not achieve anything to thinking that they will.

6 Discussion

The aim of this paper was to explore how cognitive metaphor theory can help us to understand sensemaking in an IS project. In this paper we analysed a "second system" project (i.e., a system based on experiences with a previous similar system) through metaphors that the project members used in the initial phase of the new system development. Metaphors are powerful devices that frame the development and the project from the outset. In our case many of the members of the project team had been involved in previous efforts in the same domain and this led to the use of a lot of metaphors of war and travel. It can be speculated that the long and weary previous projects had, on one hand, prepared the participants for the long and difficult 'battle', but on the other hand it seems that it also made them sceptical and somewhat reserved about the opportunities around the new system.

The strength of the fatalism demonstrated by the illness metaphors can set the project into a possibly negative trajectory already from the start and this can be hard to overcome later. The positive and realistic narratives of journey and exercising (games) at the same time provide hope and they should be strenghetened to foster the possibility of a successful fulfilment of the trip. We identified ten different metaphors and seven of them, discussed in this paper, are summarized and linked to the initial project trajectory in Table 2. First, we describe metaphor categories, then the actual metaphors used, and finally we provide an overview of the colourful language used to make sense of the past, present and future of the project.

METAPHOR CATEGORY	USED METAPHORS	PROJECT PHASE (Past, Present, or Future)
War/Battle	War, March, Mines, Minefield, Occupation, Battle, Fight	PAST: Idea of 'war' is largely tied to the previous projects. PRESENT: However, negotiations between organisations in the new project are often made sense of as battles between camps. Occupation and border-fences are linked to personnel management and workload / role negotiations in the new project.
Games/ Exercising	Games, Team, Exercising, Competitor	PRESENT: Various 'game' metaphors are linked to many current issues in the new project, such as funding and negotiations. The new project as a whole is often likened to a high stakes game with

		big feelings and money invested.
Nature	Lightning conductor, Drift, Clay lump, World	PRESENT: 'Creating a world' metaphor was particularly common for making sense of the new project and its development as a whole. More specific nature metaphors (drifting, lightning) were used to describe current issues in the project such as lack of clear work roles and guidelines as well as conflicts.
Family	A married couple, Honeymoon, Man, Child	PAST, PRESENT, and FUTURE: Family metaphors, particulary development from honeymoon to marriage to fighting was common for describing the new project development as well.
Journey	Baggage, Path, Way, Train, Back tracking, Green lights	PAST, PRESENT, and FUTURE: Journey-related metaphors were used extensively to describe the entire lifecycle of the project. The past choices were made sense of as going down a particular path; these choices are carried over to the present project as 'baggage' and the future and present of the new project is made sense of as a journey that needs to be kept on track. This might involve going back and forth and cannot be achieved by 'greenlighting' everyone's preferences.
Building	Saint Isaac's Cathedral, nuts and bolts, house building	PAST, and PRESENT: The past project was often also compared to an unstable contraption that took a long time to build, but is now in need of renovation. Present work on the new project was likened and contrasted to building a new house.
Illness and Medication	Pain, the balance of horror, Medicine (pills)	PRESENT, and FUTURE: Many of the illness and medication metaphors were linked to current specific issues in the project. Dealing with conflicts and complex negotiations between different partner organisations was made sense of as the difficulty of choosing the right medicine (pills) for the right kind of problem.

Table 2.   Commonly used metaphors to make sense of various project phases

It is interesting to see how the metaphors frame the development of the system. The used metaphors suggest that perhaps the previous project affects current activities too much and brings in negative connotations. Is the new system doomed from the start by framing its development as a battle between different camps?

We observed dominantly negative metphors (war, baggage, unstable contraption) being used to make sense of the prior projects and the legacy system. On the one hand, such "tales from the battlefield" can prepare members for the new project, but it also sets up a particular way of thinking about the new project that may be counterproductive. For example, seeing the new project as a battle between camps or a family journey that will undoubtedly end in a fight, and managing the personnel as preparation for occupation sets up a readiness for conflict and possibly failure. On the other hand, we also observed people making sense of the new project as a high stakes game or an opportunity to create a world, suggesting the members also see the project as a journey that will not necessarily end in war. Prior research has also highlighted the prevalence of military metaphors in interpreting ISD work (Hirschheim and Newman, 1991). The influence of the war metaphor is pervasive; it is used to describe everyday life between both individuals and groups. Hirschheim and Newman (ibid.) also suggest that *"in the long term, patterns of 'us vs. them' conflict leads to behavior which is difficult to change"*. Perhaps, "tales from the battlefield" are, thus, not the best way to kick off a new project.

While the negative effect of fatalistic metaphors has, therefore, been discussed before, a question of what can be done about it arises. How can more positive metaphors in framing the project be strengthened? Prior research has addressed this question in various ways. Kendall and Kendall (1993) recommend that system analysts should aim to *understand* the metaphors common in users' thinking, but should *not limit* the number of metaphors as each metaphor can be useful in highlighting different aspect of the project (cf. Smolander, et al., 2008). Thus, these metaphors can be used to guide the choice of systems development methodologies. Each metaphor is seen to have different attributes,

which make it more or less compatible with a particular development approach. For example, the family metaphor highlights that people with different goals can co-exist in a project. This suggests the importance of political negotiations, consensus building and compromise – family members can disagree, while still being supportive of each other. This is quite different from the kinds of elements that the war metaphor highlights – a war has winners and losers, needs a good strategy and a strong leader; war is also oriented towards one centralized goal (Kendall and Kendall, 1993).

Hirschheim and Newman (1991), conversely, recommend a shift in metaphor, particularly when discussing the common battle or war metaphor. Because the war metaphor entails winners and losers it can lead to threats, coercion and manipulation and is, overall, destructive in nature. It is suggested that reframing it as *constructive conflict* may help to transform these issues, so that conflicts are not only expected and enacted, but also resolved through team- and consensus-building and role-playing (ibid.).

Our research suggests a third option. Our findings confirm the insight from Hirschheim and Newman (1991) that making sense of an ISD project as a war may not be the most constructive choice. However, instead of trying to shift or reframe this metaphor, we suggest emphasizing already-existing metaphors, such as *family, journey* or *creating the world,* that may better support constructive conflict-resolution. As discussed at the beginning of this article, we rely on metaphors and other figures of speech without really noticing them. Lakoff and Johnson (1980) demonstrate that human conceptual system is metaphorical in nature: we think by metaphor, act accordingly, and the used metaphors powerfully influence our beliefs. Thus, rather than trying to reframe situations (and dealing with the complexity of trying to alter the thought patterns of a great number of different people), it is perhaps more pragmatic and realistic to focus on existing metaphoric thought patterns. In that, our suggestion disagrees with Kendall and Kendall (1993), as it recommends emphasizing some metaphors over others, particularly in cases where the influence of the legacy systems and project is so pronounced as in ours. In practice, this emphasis of particular metaphors can come down to just a more careful consideration of the everyday language used in the projects and the kinds of stories told. For example, instead of "tales from battlefield" a project would rather begin by project members recanting their *journeys*.

In short, we suggest that although "war" seems to be a *common* metaphor for making sense of IS projects, this does not necessarily mean it is either *accurate* or helpful. A potentially fruitful avenue of facilitating a reduced emphasis of "war" is considering it from the perspective of broken metaphors (Eglash, 2007). Broken metaphor is a general term referring to metaphors that fail to generate the intended imagery or are inaccurate or unethical. An example of a broken metaphor is that of "master-slave" when used for computer hardware (ibid.). The terminology originates from clock making, where the metaphor (even if unfortunate) was accurate – a "master-slave" clock referred to a coupling of two autonomous clocks: "a free pendulum swinging in a vacuum (the master), and another (the slave) that could keep time itself but was subject to periodic corrections from the master" (Eglash, 2007). However, in the most commonly used case in computing (master-slave drives) the metaphor is no longer accurate as such a control relationship does not exist. While limiting the richness of language can have harmful side effects, in this case, the negative connotations of this metaphor as well as the existence of alternatives (mother-daughter; boss-worker) warrants a reconsideration (ibid.). We argue that the war metaphor in IS projects (the historical root of which may lie in, for example, frequent tensions and conflicts between the "business" and "IT" sides) warrants a similar reconsideration – especially given the many alternatives available.

7   Conclusion

This qualitative study analysed the metaphors used by project members working on a collaborative ISD project. The contribution of this paper is twofold. First, we describe common metaphors used in an ISD project, providing an overview of the colourful language used to make sense of the past,

present and future of the project. Such an overview gives an idea of the kinds of figures of speech and dominant ways of thinking characteristic to ISD projects. Second, we demonstrate how key metaphors link to broad phases in the project lifecycle, such as reflecting on past project experience, beginning of the project and envisioning the future, dealing with pressing current issues, etc. These links allow us to speculate about the potential trajectory of the project. In particular, we note the risk that a significant legacy influence can have on a new ISD project, especially when the legacy is made sense of as *baggage* and *war*. Expectation of further war, illness and trouble shows a kind of fatalism that may not bode well for the project. We suggest that an emphasis on more positive, yet realistic, metaphors, such as journey and family can strengthen the position of the project. In the future we will deepen our analysis by exploring further the differences between metaphors. This paper gave an overview of seven metaphors, while our findings demonstrated the existence of ten different metaphors. We will discuss all of these metaphors in more detail in future research.

8   Acknowledgements

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