Who are the end-users?

Pain and agency in Bolivian postabortion technology networks

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Abstract

This paper explores agency in Bolivian actor-networks incorporating the Manual Vacuum Aspiration (MVA) syringe, a technology for extracting uterine contents after incomplete abortion. The author, as consultant employed by the syringe's manufacturers, investigated women's complaints of pain in aspiration procedures. The designers of MVA configured patients as awake and available to provide pain alerts to warn clinicians of possible uterine perforation. However, gynaecology ward staff named patients' screams as traumatic or unwarranted. The author identified parallels with car alarms that provoked disturbance when triggered too easily. Pre-set shock thresholds to avoid this problem were built into the AL 48 Talking Car Alarm, a model offering Instant Panic Protection with "woman's voice screaming" Talking Messages. The AL 48's adjustable sensitivity levels were lacking in MVA patients, whose uncontrolled screams influenced some actors against the technology. The author found flaws in the designer-configuration of human participants in MVA procedures. She concludes that in some scenarios, pain can destabilise theoretical constructions of human/non-human symmetry in actor-networks.

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In this paper I examine performances of a postabortion technology, Manual Vacuum Aspiration (MVA), focusing on events involving women's complaints of pain. In situations of non-choice and even overt resistance, to what extent could patients in MVA procedures be construed as "end-users" of the technology (Saetnan 1996; 2000)? I analyse some Bolivian hospital scenarios using Actor-Network Theory (ANT), "a relational and process-oriented sociology that treats agents, organisations, and devices as interactive effects" (Law 1992/2003:7). I draw some conclusions about user-configuration in the design of technologies involving pain.

I participated in the scenarios to be discussed as ethnographer doing fieldwork for my PhD thesis,[2] as research consultant employed by the US-based organization manufacturing the technology,[3] and as activist promoting the rights of aborting women through national and international advocacy networks. The "partial connections" (Strathern 1991) between these different selves sparked off complex relations with MVA, the extraction with a hand-held suction syringe of uterine contents after incomplete abortion[4] or miscarriage. MVA was promoted by IPAS (1992:1) as a "convenient, safe and effective" alternative to the traditional method of dilation and curettage (D&C) under general anaesthesia.[5] As IPAS consultant, I supported negotiation of the official introduction of MVA for ambulatory treatment[6] of incomplete abortion (Rance 2005). MVA was valued by the Ministry of Health in cost-benefit terms, and by some medical staff because it kept the beds moving[7] and freed up operating schedules. However, as rights activist I was concerned about the lack of women's informed choice regarding MVA, and about women's fears and complaints of pain. When analysing conflicting accounts of pain, ANT led me to reconsider the technology, my roles in its performance, and the agency of women in MVA procedures.

Things and their users

On commencing my 1997 fieldwork in two urban third-level hospitals,[8] I conceptualised the MVA syringe as a "thing" (Ormrod 1995:44-45) whose definition was stabilised in the catalogue then being distributed by my employers:

> IPAS manual vacuum aspiration syringes with flexible plastic cannulae provide a convenient, safe and effective vacuum aspiration method to evacuate the contents of the uterus or to obtain specimens for pathological examination. These instruments must be used by or under the supervision of a trained physician, or by a health care provider specially trained in their use. (IPAS 1992:1)

Later that year in an academic seminar in Dublin[9] I introduced MVA as an entity with intrinsically benign features (Dugdale 1999:113). In the manufacturer's terms, the technology was *used by* providers with varying levels of skill, and problems in its implementation were largely attributed to inadequate technical training. In my presentation, I referred to aborting women as passively *treated with* MVA, undergoing aspiration procedures, or in the worst case subjected to them (as victims with no choice). A fellow graduate student[10] observed the simplistic nature of my representation of MVA:[11] "You present it as 'produced', 'efficient' – but in practice, it's erratic". She introduced me to Ann Rudinow Saetnan's work on gender and reproductive technologies (Saetnan 1995; 1996). I noted Saetnan's (1996:35-6) concept of "layers of users", in which health workers and other "spokespersons" for the technology (such as myself) were "intermediary users", and women having diagnostic procedures or treatments were "end-users":[12]

> There is often substantial room left for end-users to speak for themselves through the selective and creative appropriation of technologies (…). This does not mean that

> spokespersons and end-users share equal power. The spokesperson role is based on the ability (or at least the untested claim) to speak with the voices of many. End-users, unless organized, speak only as individuals. Thus, while potentially a risky role, the spokesperson role is at least in the short term the more powerful. End-users may exercise power by organizing to overthrow their spokespersons (an option which requires considerable effort), or by making choices within whatever scope remains for individual selectivity and creativity. (Saetnan 1996:36)

The term "end-users" challenged my notion of the vertical exercise of power by medical staff using MVA *on*, or in IPAS catalogue terms *for* patients. It seemed fair to credit users' creative capacity for appropriating technologies, but what space did women on Bolivian gynaecology wards have for "individual selectivity"? The balance seemed inevitably weighed against aborting women and in favour of "more powerful" spokespersons deciding on their treatment. From this perspective, it seemed almost cynical to call women "users" of a technology they did not choose.

I concluded that MVA – often forced by medical emergency, and stigmatised by its association with illegal pregnancy termination[13] - presented a different case in point from the technologies researched by Saetnan and others drawing on theories of social shaping and Social Construction of Technology (SCOT). Ultrasound, IUDs, cars, computers and domestic appliances might indeed be appropriated by users with life-enhancing effects. MVA was not such a purposeful consumer choice but a back-against-the-wall[14] necessity, often involving fear and pain,[15] to avoid death from uterine haemorrhage and infection.

Pictures of inequality

In the text cited above, Saetnan (1996:36) represents intermediary users as more powerful than end-users. She was unwilling to "accept the pretence that there are no pre-existing structures in the arena where a technology is introduced or that those structures are unknowable" (Saetnan

1995:110). Emanuel Schegloff points to *a priori* "knowing" as problematic, since it preconditions researchers' appreciation of the significance of local data:

> I come to the present discussion chastened by the experience of "knowing" a priori who the good and bad guys were, "knowing" a priori the key defining features of the respective critical stances which were my "texts", "knowing" a priori what "the context" was, "knowing" a priori how the results were likely to come out, more or less, "knowing" a priori – by which I mean before taking seriously the object of inquiry in its own terms – what sort of result the inquiry was to have – *ought* to have. (Schegloff 1997:171, emphasis in the original)

Conversation analysis implies suspending preconceptions about social structure and inequality, and focusing on the unpredictable relations established by participants on particular occasions:

> Conversation (...) appears to be so organized as to allow virtually any overall distribution of turns, from a wholly equalitarian one to a highly skewed and asymmetrical one. (...) [T]he Sacks et al. (1974) account of conversation does not *presume* an equalitarian society, it *allows* for one. It also allows any complement of parties on any occasion to embody progressively a local cadre of participants with its composition on that occasion.[16] It can therefore become a canvas on which the practices end up having painted a picture of inequality, or exclusion, or oppression, or asymmetry without a sense of oppression, etc.. Here is open terrain for analysts. Those who take conversation or other talk-in-interaction to be basically an arena of oppression should undertake to *show* that. (Schegloff 1999:563-564, emphasis in the original)

In later work, Saetnan (1997) addressed the challenge of constructivist approaches to theories of women's oppression: "[W]hat do we need to take as 'already known' in order to make a feminist evaluation of a given technology?". She warned against producing "so-called 'wretchedness studies'[17] (…) which document the ways in which women are structurally 'locked' into situations which reproduce behaviours which are stereotypical and women-oppressive" (Saetnan 1997:239). Saetnan's revised approach (1998) sought a compromise between essentialism (gender structures are pre-defined) and empiricism (if gender is relevant, it will show up in the data). She advanced a reflexive constructivist position: gender will be found relevant in your data if you commit to a theory which encourages you to find it there.

Similarly, I suggest that agency will be found relevant in your data if you commit to a theory which encourages you to find it there. "Committing" – at least provisionally - to ANT leads me to look out for agency even in medical scenarios where hands seem tied and doors are closed, allowing no apparent escape.[18] I aim at analysis that neither tragically predicts women's oppression and medical domination, nor romantically anticipates harmonious shaping of technology through human creativity.[19] MVA presents a challenging test for the notion of "end-users" and the capacity of aborting women to influence the technology in particular scenarios (Saetnan 1997:240).

While moving from theories of social shaping towards SCOT and ANT,[20] Saetnan (2000) has continued to employ and even combine the structurally-loaded terms "end-users" and "lay users":

> Our concern is primarily for those users on whose bodies the technologies are applied, whatever their decisional power may or may not be in each case. To mark these apart from users in other senses, we may refer to them as end users or, if we wish to highlight their relative exclusion from expert discourses, as "lay end users." The various health professionals and the state could then be called "intermediary users," that is, users on behalf of end users. (Saetnan 2000:16)

From positions pre-defined as subordinate, to what extent *can* end-users speak and be heard?[21] Following Schegloff's injunction to suspend *a priori* knowing, I re-analysed study data from three sources: the IPAS (1992) instrument catalogue, contrasting accounts of a series of MVA procedures, and a recorded interview with a nurse. I use the ANT strategy of exploring networks whose members are mutually configured in specific situations.

Configuring the patient

According to the IPAS catalogue, MVA was to be *used by* health care providers *for* women, more often named as patients with certain pathologies. The catalogue mostly referred to contact between instruments and bodily organs: "a cannula that fits snugly through the cervix". Patients, when mentioned, generally appeared in passive roles: "The patient should be fully informed about risks or benefits of the procedure, treatment options, and appropriate follow-up"; "Take vital signs while the patient is still on the treatment table" (IPAS 1992:2-9).

In just one instance, the catalogue recommended that the patient be available to play an active role: "It is preferable that the patient be awake during the procedure *so she can alert the clinician to any sudden increase in pain (indicating possible perforation)*" (IPAS 1992:7, my emphasis). The patient's conscious state and alert function were configured at the design stage (Woolgar 1991; Grint & Woolgar 1997) to pre-empt or minimise (sanctionable) damage by the clinician during the procedure. Some pre-existing degree of pain was assumed, with the verb "*alert*" presumably alluding to moans, verbal protests or screams that could be produced by the patient if her pain level suddenly increased. Thus, from the designer's point of view, pain was a potential and even necessary element in the technology, and the possibility of its manifestation was a positive feature contributing to the safety of MVA.

A screaming pathology

I now present contrasting accounts of MVA procedures done by residents under the supervision of an Insurance Hospital gynaecologist. On the last day of my fieldwork, technology innovator[22] Dr. Walters[23] told me he was successfully cutting operating lists by doing aspiration procedures in ward treatment cubicles. Immediately afterwards I met a resident friend who told me about MVA interventions the previous day in which the women treated had reacted badly:[24]

Dra. Helga Haber:	But it was horrible! Two of them squealed - One almost passed out-
SR:	It's not the method as such - it's the inadequate management of anaesthesia... They need training in counselling and verbal anaesthesia.[25]
Dra. H:	I don't know.

Helga alluded to the events as "horrible", referring to the women as having "squealed" and "almost passed out" (rather than to their pain as such).[26] True to my role as technology entrepreneur,[27] I responded to her emotive account by defending "the method as such", an artifact divorced from its context of use.

The contrast between Dr. Walters' optimistic account and Helga's indignant protest took on epiphanic significance that led me to reinterpret my role as researcher (Denzin 1989:130).[28] I decided to investigate the previous day's events by interviewing the parties involved. As well as being an action-research strategy (Rance 2002), compiling the pain dossier was a redemptive act. Through it, I tried to assuage my guilt at having colluded with Dr. Walters' innovation agenda without considering the variable effects of the technology manufactured by my employers.

I first asked Dr. Walters for his account of the procedures, and he affirmed the benefits of MVA in terms of low pain levels, non-use of anaesthesia, and patient and provider satisfaction:

SR: And regarding: MVA with: incomplete abortion, how has it been for you?

Dr. Walters: We've done:: er:: [.] er three cases. [2] Ve:ry well. [1] That's to say, ['] [.] the intervention is done, [.] ve:ry little pain, ['] the paracervical block[29] is not used because the neck of the womb is open, [2] and:: and you see, they go away happy:! [.] They go away contented:! You see? And so do we. ['’] Er:: we're more contented, right:? To be like, free::- ['’] er:: [.] freeing up a bit the aspect of theatre programming.

When I probed him about the pain issue, Dr. Walters defined MVA as a method designed for use without anaesthesia. He attributed women's expressions of pain to "not understanding" the nature of the method, and to "nervous tension" caused by the presence of many observers:

SR: And: how is it being managed, the matter of verbal anaesthe:sia, accompaniment, con{trol of pai:n}

Dr. W: {But [.] er::} [1] I particularly, I'm: [.] I'm explai:ning to them, to the patients, what the intervention is:. [.] ['] That it's a me:thod that has al:ways been done without anaesthesia! Because it's the method [1] that was:::- that was invented: or that a study has been done for that. [.] [']But: m: [.] there are some patients who understand and others who don't. [.] ['] The ones who don't, no doubt [.] because as there are so many people around the patient, [.] ['’] that's to say the people who are obser:ving, ['] who are being taught, ['] [.] that ca:n cause that- that nervous tension, and: it:- seems to them that it were hurting them more. [.] [']

Dr. Walters alluded to the prototypical private patient as *submitting herself* to the intervention in a compliant way, while patients in the Insurance Hospital did not tend to "tolerate" the presence of multiple observers:

> Dr. W: But: [.] I've been able to observe myself: on a pri:vate level, for example, [.] ['] that:: [.] well explained to, the patient has absolutely no:: [1] doesn't have: any problem! [1] She submits herself to the intervention without risk and without ['’] major nervous problems! (…) But here, [.] th- there are about- about ten: of us people around the pa:tients, we all want to collaborate, [2] and: and that in itself gives a little bit of [.] over-protection to the patient and she doesn't tolerate it very well, in many cases.

Dr. Walters then attributed exceptional agency, not to a human actor but to a pathology:

> Dr. W: ['] But with others, for example yesterday in an: in:complete abortion that screamed tremendously, ['’’] [1] m: until:: well, the people who were outside c- cleared out, right?

By Dr. Walters' account, the screaming pathology-actant exercised such force that it led human bystanders to vacate the waiting area. This pain alert – to which I will return at the end of my paper - surpassed the clinician warning function anticipated for patients in the IPAS catalogue. Dr. Walters went on to disqualify the patient's reaction as excessive and unwarranted. He transformed the ability of the ten-millimeter cannula to penetrate the cervix into evidence of the impossibility that its insertion could cause pain:

Dr. W: But: it's not like that! It's: no:t [.] worth su:ch a fuss. Because the neck of the womb was open! [.]

SR: Mm:

Dr. W: A ten millimeter cannula went in:! [2] That's to say- what pain could she have had?

SR: Mm

Dr. W: Right? ['] But she's very sensitive, the- the patient.

SR: Mhm:

Dr. W: Although I spo:ke to her, if everybody was the:re, [.] the husband was outsi:de, the husband was walking around biting his nai:ls, [.] ['] He says "What have you done to my wi:fe! Why did she scream [[laughing]] so mu:ch!"

SR: Right:

Dr. W: Right? [.] But:: it succeeded and already:- and today she's leaving, we kept her in for: [.] for prevention! [.] Right?

SR: Right: [1] Right, right [2][30]

Dr. Walters' justifications and denials reinforced his allusions to pain, hurting and screams. His arguments can be taken as pointing to contrary meanings: "People do not go around asserting things that are not, or could not be, in doubt" (Edwards *et al.* 1995:42). My own non-committal ("Mhm:") and affirmative responses ("Right: [1] Right, right [2]") to Dr. Walters' account were strangely out of synch with my feelings of outrage. This non-judgmental research strategy - interviewers' use of exaggerated self-restraint, repeatedly "jumping turns" through non-committal interjections to keep the research subject talking - has been criticised as manipulative (Rapley 2001).

A hypothetical choice

Next I interviewed the patient, Mrs. Gong, a Korean woman accompanied by her Bolivian husband. Her account, like that of the resident Helga Haber, emphatically contradicted the gynaecologist's version of events. I was struck by Mrs. Gong's repeated use of first-person object pronouns: "for me", "it h- hurt m:e:". "nailing me":

SR: Uhm: [2] I'd like to know more than anything, uhm:: [.] how it was for you with the treatment, with:: er:: the:: [1] the: procedure with the syringe that they did to you yesterday. [.] How you felt, with: [1] with this method.

Mrs. Gong: Let's:: say:: the:: for me it was a stron:g pain, [1] it h- hurt m:e:, ['''] from the beginning I started to cry from the pain, [''] it wa::::s as though they we:::re nailing::: [2] nailing me, right? That's to say a nail:, inside, ['''] [[nervous laugh]] and:::: [.] ¡it passed quickly! [2] Yes:. [2]

Mrs. Gong alluded repeatedly to pain (*dolor*) and the simile of nailing (*como si me estuvieran::: clavando:::*), a graphic representation of a torturous assault. What the resident called squealing and the gynaecologist screaming, Mrs. Gong named as crying (*he empezado a llorar por el dolor*). She focused on the pain as actant, almost a protagonist in its own right, almost her own feeling: "It was a stron:g pain", "it h- hurt me:e:", "I started to cry from the pain".

When I asked what could have lessened the pain, Mrs. Gong mentioned anaesthesia. However, she immediately repeated the doctor's justification for not using a paracervical block:

SR: And:: can you think of anything that would have made the::- the expe:rience better for you? [.] Let's say that would have alleviated a bit: the:- the pain and all:? [2]

Mrs. G: E:- e:- e- alleviate, I think with anaesthesia! [‘] They {didn’t}

SR: {Mm:}

Mrs. G: give me anaesthesia [.] er: because [.] the doctor says: [‘’] that:: it isn’t so good, anaesthesia. [‘’] Because the patient doesn’t feel the pain! [1] That’s to say they might harm another pa:rt: [‘’], whereas with an- [.] er without anaesthe:sia, er::: they realize, right? [‘’] that: it’s hurting you and that:: [.] that they shouldn’t [.] touch you mo:re [.]

SR: Mhm:

Mrs. G: deeply.

The gynaecologist’s argument - conveyed to Mrs. Gong via her husband after the procedure - transformed the IPAS catalogue recommendation that the MVA patient should be awake (without general anaesthesia) into a prohibition of anaesthesia as such (ruling out local anaesthesia and analgesics). On asking gynaecologists about this later, I was told that the paracervical block was often avoided because of the risk of convulsions if it were wrongly administered.

In response to further questioning, Mrs. Gong affirmed her preference for a less painful method, or even general anaesthesia:

SR: Now, [.] summing up, let’s say the whole expe:rience, [.] if you had this sort of:: problem another time [.] and they had to:: do a scra:pe, [.] er: would you:- [.] use this method?

Mrs. G: Mm:::

SR: What would you say? [3]

Mrs. G: [[in a strangled voice]] A:::y:! If- if there is another: method that: isn’t so painful [[smiling]] I think I’d take another! [‘’] [[laughs]]

SR: Mm::

Mrs. G: Mm::

SR: Even if it meant general anesthe:sia, that you'd have to: stay more time in the hospital? [1]

Mrs. G: Yes.

SR: Yes:? You'd prefer that?

Mrs. G: Yes:

In putting forward a hypothetical choice of technologies, I constructed Mrs. Gong as a user-agent: "[W]ould you:- [.] *use* this method?". She replied not in this vein but as a potential consumer in an accepting mode: "I think I'd *take* another!" (my emphasis).

The trauma of complaint

How did the squeals, screams or cries of women treated with MVA affect gynaecology ward staff? As I have shown, both Helga Haber and Dr. Walters reacted negatively to these signals of resistance and distress. Helga found them "horrible" and Dr. Walters, unwarranted. Helga's reaction was to discredit the technology, and Dr. Walters disqualified the patient as unreasonable.

In an earlier interview with the head nurse, I had broached the matter of comparative advantages of MVA and dilation and curettage (D&C) for treatment of incomplete abortion:

SR: [F]rom the point of view of the nurses, let's say, [1] which of the methods has more advantages? [.] From the point of view of you: all.

Nurse Elías: Mm:: curettage in theatre, n:- because this MVA is a little bit traumatic here, ['] the patients: [.] a:re without anaesthesia:, directly they do it to them ['] with local: anaesthesia in the ne:ck of the womb sometimes:, some little pricks and nothing more, directly! ['] But that is not anaesthesia: nor- complete

relaxation! [.] [‘] So they feel a lo:t of pain [2] a lot of pain. They complain a lo:t, the patients.[31]

Later in the interview Nurse Elías again used the term “traumatic”, with reference to surgical extraction of foetal parts in second-trimester therapeutic abortions.[32] Nurse Elías considered this method to be less favourable than expulsion of the intact foetus using an “abortion pill” containing misoprostol.[33] What did she mean by “traumatic”, and for whom?

SR: Let’s say, when you say that [.] uhm [.] trauma:tic, [.] does that mean let’s say for the patient, {for the nurse her}

Nurse E: {for the pa:tient.}

SR: se:lf:

Nurse E: That’s it- [[laughing]] those of us who see it [[¿?]] piece by piece, [the head:] [.] No!

SR: Right:

Nurse E: When they’re big, that’s how it is.

Nurse Elías’ technology preferences were affected by experiences she named as “traumatic”. She used this term about patients’ vehement “complaint” when MVA was performed without anaesthesia, and about seeing foetal parts surgically removed. In response to my question above, she was first inclined to put trauma on the patient’s side. However, when I prompted her with the possibility of trauma for nurses, she picked up and asserted this option with a laugh. “Trauma” influenced Nurse Elías in favour of D&C for treating early incomplete abortion, and against surgical procedures in second-trimester pregnancy termination. The matter at stake was the auditory, visual and emotional impact of women’s manifestations of pain in the first case, and of foetal

dismemberment in the second. Thus, Nurse Elías mentioned "complaint" not just as expressive for MVA patients, but also as traumatic for nursing staff participating in aspiration procedures.

Human and non-human actants in warning systems

My analysis of these data suggests a flaw in designer configuration of the MVA patient. A woman's sensitivity to pain might be judged excessive by the clinician if her alerts surpassed tolerable auditory levels in the apparent absence of uterine perforation. The problem was setting a sufficient level of patient-sensitivity without provoking false alarms. I found parallels here with car alarms, widely associated with disturbing noise in urban areas. An Internet search produced a commercial reference to an alarm model with features patently lacking in MVA patients. Promising "No False Alarms" and "Instant Panic Protection", the AL 48 Talking Car Alarm ($US 69.95)

> …will detect someone tampering with your car and warn the intruder in a stern voice. When it senses repeated or heavy shocks, the voice shouts a warning, then the 127 db siren sounds for 30 seconds. It has an instant panic feature with a woman's voice screaming for help (…). Its sensitivity is set by striking your car to set the shock threshold. Once set, any impact greater than the threshold you set will activate the alarm. [34]

The AL 48 has seven Talking Messages of which the last three are: "You are Too Close to the Vehicle, Please Move Away"; "I was Tampered With" (shout); "Please Help Me" (scream).[35] Both the AL 48 and the MVA patient were configured as having the capacity to trigger an auditory warning device. The relative disadvantage of the MVA human pain alert was the inability of designers and clinician-users to set case-specific shock thresholds. In the absence of sensitivity monitoring by on-site technicians, "false alarms" were commonly reported. Patients' unpredictable responses to cervical and uterine tampering led them to activate Talking Messages (shouts and screams) at volume levels that proved disturbing to service providers and bystanders. The lack of a

control mechanism for the human panic protection device negatively affected clinicians' prestige, the reputation of MVA, the effectiveness of screaming as a patient warning, and network members' acceptance of the technology, leading some to opt – at least hypothetically - for "System Disarm" with general anaesthesia.

Findings from this Bolivian study suggest that women scripted as MVA end-users may implement anti-programmes (Latour 1991:105) such as loud screaming that indicate consumer dissatisfaction and influence other network members against the technology. Patients' Talking Messages, while environmentally challenging, offer useful indications to technology entrepreneurs in competitive local and global markets. User configuration presents a specific challenge in the design of technologies incorporating alarm systems.

Who is the end-user?

Women in the MVA networks studied, eluding *a priori* definition as users or end-users (Akrich 1995:174; van Kammen 2000:91; Saetnan 2000:16),[36] were diversely configured in terms of agency. For the syringe's designers, they were patient-beneficiaries with the potential to avert clinician errors through pain alerts. For the resident and the head nurse, they were squealers and complainers provoking horror and trauma in ward staff. For the gynaecologist, they were patients who either submitted themselves to MVA or got unreasonably nervous; one of the latter mutated into a screaming pathology that chased bystanders away. The patient I interviewed represented herself as the object of torturous pain and the hypothetical consumer of another, less painful method. As interviewer, I addressed her as a potential user-chooser among alternative technologies. As ANT analyst comparing the patient warning system with the "woman screaming" car alarm, I conclude that pain can act to destabilise theoretical constructions of human/non-human symmetry in specific technology networks.

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Key To Transcript Notations

System developed by Jefferson (1985), adapted by Susanna Rance.

word-	Indicates that word or phrase is cut off here
{words}	Phrase or part of phrase pronounced simultaneously with similarly marked phrase which precedes or follows it.
<u>underlined words or syllables</u>	Spoken with emphasis
:::::	Indicates prolongation of preceding vowel or consonant
[.]	Pause, less than one second
[2]	Pause lasting two seconds, etc.
['] ["] ['"]	Intake of breath: short, middling, prolonged
[words]	Words in square brackets are uncertain in the transcript
[??]	Words which could not be transcribed (inaudible)
(…)	Part of the transcript is omitted here
[[indications]]	Gestures, etc. noted by the researcher.

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Notes

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[2] Thesis entitled Changing Voices: Abortion Talk in Bolivian Medical Settings.

[3] IPAS (formerly International Projects Assistance Services) - since 1999, just *Ipas* - is an international, not-for-profit, non-governmental organisation based in Chapel Hill, North Carolina.

[4] Incomplete abortion - the partial expulsion or extraction of the product of conception – can cause life-threatening bleeding and infection.

[5] In 1999, a ministerial resolution authorised introduction of MVA within Bolivian postabortion care services and national insurance scheme coverage.

[6] Day care without hospital admission.

[7] "*¡Y se está movilizando las camas!*". Recorded in an interview with gynaecologist Dr. Walters, 25/7/97.

[8] State Hospital (affiliated to the public health system) and Insurance Hospital (affiliated to the national insurance scheme for salaried workers and their dependents), both pseudonyms.

[9] Department of Sociology, Trinity College, University of Dublin, November 1997.

[10] Maria Lohan, to whom I am indebted for discussions on the "Technogender theoretical framework" of her (1998) Ph.D. thesis.

[11] "[F]eminist sociology on technology must be able to show *how* relations of power are exercised and the *processes* by which gendered subjectivities are achieved. It must therefore attend to the range of discursive practices and the associations of (durable) materials, meanings, and subjectivities within which gender and technology are defined and differentiated. To do otherwise is to reify gender as binarism and technology as 'thing', whereas we know that they are relational, performative and subject to negotiation." (Ormrod 1995:44-45, emphasis in the original)

[12] "[I]n the case of obstetric ultrasound we are dealing with layers of users – end-users and intermediaries. Note that the intermediary user is at once both user and spokesperson. When using ultrasound in antenatal care, health professionals 'speak' on behalf of the sound waves, claiming they will not harm. They "speak" on behalf of the foetus, claiming to know how it is developing. They 'speak' on behalf of the end-users, claiming to know what is in their interests." (Saetnan 1996:35-6)

[13] While Bolivian law generically qualifies induced abortion as a criminal offence, Article 266 of the 1972 Penal Code deems it "non-punishable" (*aborto impune*) in cases of rape, incest, or risk to the woman's health or life. This legislation has been formally applied in only three cases (in 1998 and 2000). At the time of my research, up to half of women on gynaecology wards had been admitted with complications of illegal abortion. I documented the practice of some therapeutic abortions in hospitals (normally authorised by a Medical Committee, *Junta Médica*), although these were not publicly admitted.

[14] I associate this metaphor with the graphic image of a half-dressed Aymara woman, Mrs. Calisaya, standing with her back against a door, unwilling to step forward into the ward treatment cubicle for an MVA procedure (field notes, 11th June 1997).

[15] Insurance Hospital patient Mrs. Calisaya: "I'm frightened! I'd like them just to put me to sleep... They're going to hurt me..." (Translation of field notes, 11th June 1997).

[16] Here, Schegloff's extended footnote includes the following: "[C]onversation analytic work has been done, and is being done, across a considerable range of societies, cultures, languages, situations, etc.. We do try to give ourselves opportunities to be made aware of the bearing of such contextual variations – whether sociological, historical, anthropological, linguistic, etc." (Schegloff 1999:569 n. 7).

[17] *Elendighetsforskning*. Saetnan (1997:239) refers to the discussion of this concept in Bjorg Aase Sørensen (1977).

[18] Barbara Bradby and colleagues (1996) documented cases of Bolivian women who "got themselves out" of labour wards in public hospitals to avoid caesareans, often with the support of relatives and traditional midwives. One midwife told an interviewer how she instructed the relatives of a hospitalised woman threatened with a caesarean: "Get her out and bring her to me. I know how to do it" (Bradby and Murphy-Lawless 1996:134). I was recently told of an urban woman in labour with her fourth birth who "threatened to

escape" from hospital to avoid a caesarean and successfully negotiated a vaginal birth (Santos Coaquira, personal communication, La Paz, 6th April 2005). This example shows an interesting shift from the "threat of caesarean" to the "threat to escape" as a proactive rather than an evasive move.

[19] Merete Lie and Knut H. Sørensen (1996:19-20) refer to the "tragic view" reflected in much feminist research on technology, and the "more romantic view of men's creative relationship to technology".

[20] "I decided, though with some trepidation, to maintain my faith in the ability of 'everywoman' to act in her own best interests, and that one possible contribution from research might be to identify the scope for such action. (…) I decided to try whether ANT/SCOT would be helpful towards those goals." (Saetnan 1997:240)

[21] "Can the subaltern speak? What must the elite do to watch out for the continuing construction of the subaltern?" (Spivak 1988:294)

[22] The concept of technology innovators is key to Rogers' (1962) diffusion model that remains influential in explaining the spread of inventions: "Rogers posits a range of ideal types of innovation adopters, scaled according to their readiness to adopt new ideas and artifacts. The most venturesome are the innovators. Then follow the early adopters, characterized as 'respectable,' the still more deliberate 'early majority,' and finally the 'laggards,' whom Rogers calls traditional. In any potential user market, these types would tend to be distributed along a normal curve." (Saetnan 1995:4-5 citing Rogers 1962)

[23] All names are pseudonyms.

[24] Translation of notes written just after the interaction, 25th July 1997.

[25] Verbal anaesthesia combines accompaniment of the person treated with pain control through alternating techniques: explaining steps of the procedure, showing relaxation and breathing exercises, and maintaining conversation as a distraction from the stress of the intervention.

[26] "Two of them squealed": "*Dos han chillado"*. The noun in Spanish is "chillido, *m.* screech, scream, shriek, shrill sound; bawling of a woman or child" (Cuyás 1972). The verb *chillar* can also refer to the squeals of animals like rats or pigs.

[27] "Entrepreneur" is an Actor Network Theory correlate of diffusion theory's "innovator" (Mol 1999:86; Saetnan 1995:10, 44).

[28] Norman Denzin gives the name "epiphanies" to "interactional moments that leave marks on people's lives", with "the potential for creating transformational experiences": "In them, personal character is manifested and made apparent. By recording these experiences in detail, the researcher is able to illuminate the moments of crisis that occur in a person's life. They are often interpreted, both by the person and by others, as turning point experiences (Strauss, 1959). Having had this experience, the person is never again quite the same" (Denzin 1989:15).

[29] A local anaesthetic injection applied to the cervix.

[30] Translated excerpt of recorded interview with Dr. Walters in the Insurance Hospital gynaecology ward classroom, 25th July 1997.

[31] Translated excerpt from the transcript of an interview recorded in the nurses' station, gynaecology ward, Insurance Hospital, 4th June 1997.

[32] See Note 13.

[33] In Bolivia and other countries in the region, the prostaglandin misoprostol is available from pharmacies in an anti-ulcer drug with the brand name Cytotec. Misoprostol is one of two main components of the "abortion pill" RU 486, the other being the antiprogestin compound mifepristone (Klugman & Budlender [eds.] 2001:xix)

[34] *Guard Dog Defense Inc. CAR ALARMS. Talking Car Alarm.* (n.d.) Retrieved April 2, 2005 from http://www.guarddog.net/aalarm.htm

[35] Bold and red type in original.

[36] "[I]t may not be entirely clear who is, in the final instance, the end user" (Saetnan 2000:16).