Developing a categorisation system for rapists' speech.

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Abstract

Case linkage, the linking of crimes into series, is used in policing in the UK and other countries. Previous researchers have proposed using rapists' speech in this practice (e.g. Davies, 1992) however, researching this application requires the development of a reliable coding system for rapists' speech. A system was developed based on linguistic theories of pragmatics which allowed for the categorisation of an utterance into a speech act type (e.g. directive). Following this classification, the qualitative properties of the utterances (e.g. the degree of threat it carried) could be captured through the use of rating scales. This system was tested against a previously developed system (Dale, Davies & Wei, 1997; Kendall, McElroy & Dale, 1999) using 188 rapists' utterances taken from victims' descriptions of rape. The pragmatics-based system demonstrated higher inter-rater reliability whilst enabling the classification of a greater number of rapists' utterances. Inter-rater reliability for the subscales was also tested using a sub-sample of 50 rapists' utterances and inter-item correlations were calculated. Seventy-six per cent of the subscales had satisfactory to high inter-rater reliability. Based on these findings and the inter-item correlations, the classification system was revised. The potential use of this system for the practices of case linkage and offender profiling is discussed.

Key words:

case linkage; crime analysis; speech acts; language; rape; profiling

Using speech to link crimes: Developing a categorisation system for rapists' speech.

Crime analysts or psychologists aiding the police with their investigation of crimes, where the offender(s) is unknown, may be asked to determine whether a number of offences are likely to have been committed by the same perpetrator and therefore are "linked". In the current paper this process is called case linkage. It has also variously been referred to as linkage analysis (Hazelwood & Warren, 2003), comparative case analysis (Bennell & Canter, 2002; Merry, 2000) and can be a form of behavioural analysis (Davies, 1991). Regardless of the name given, this process rests on identifying similarities between offences that point to them being committed by the same perpetrator. The findings of case linkage can be used to advise police investigations and might also be used as similar fact evidence in legal proceedings (Ormerod, 1999).

Whilst case linkage is widely practised by crime analysts surprisingly little has been published about it. Case linkage rests on two assumptions; the assumption of behavioural consistency, that an offender will show some consistency in his/her behaviour over a series of offences and the assumption that there is sufficient variation in behaviour that individuals will be distinguished from one another. The issue of behavioural consistency has received a lot of debate in the field of personality psychology (see Pervin, 2002 for an accessible review). This has resulted in the recognition that the consistency of behaviour in similar situations over time (termed "temporal stability") is greater than the consistency of behaviour observed in different situations (termed "cross-situational consistency") (Shoda, 1999). For case linkage, the behaviour of an offender in a specific situation over a period of time is being

considered and therefore it is assuming a degree of temporal stability for offending behaviour.  Unlike property crimes (Bennell & Canter, 2002), rape is an interpersonal crime and therefore there can be difficulties in considering it as a unified activity.  For example, variation in victim resistance may represent a degree of situational change (Davies, 1992).

That individuals vary sufficiently in behaviour to enable identification of a series is an empirical question which has received attention.   Hazelwood and Warren (2003) have produced a paper that describes their view of the process of case linkage using a sexual murder as an illustration; Santilla, Korpela and Häkkänen (2004) investigate case linkage as an expert decision making task; and three studies (Bennell & Canter, 2002; Green, Booth & Biderman, 1976; Grubin, Kelly & Brunsdon, 2001) have sought to test the accuracy with which offence behaviours can be used to predict linkage for burglary and stranger rape.  They all report some success at identifying linked cases within a sample of linked and non-linked offences based on behaviours displayed by the offender during the crime thus suggesting some support for case linkage.  Of particular interest were Bennell and Canter's (2002) observations that behaviours generated by the offender showed more consistency across a series than behaviours produced in reaction to the situation/victim.

Case linkage is conducted using the verbal and non-verbal behaviours displayed by the offender at the crime scene.  This information is typically sought from the description of the offence as given by the victim.  Whilst verbal behaviours can be used in the process of case linkage thus far this has tended to be limited to where idiosyncratic speech is reported.  Some researchers have however begun to

recognise the potential for using speech in the analysis of crimes (e.g. Davies, 1992).

In fact examples of speech have been included within the behavioural checklists used

by some authors when assessing case linkage (Grubin et al., 2001). Examples would

include threats, announcements and compliments. These checklists were developed

from the victim statements following a process of content analysis and therefore tend

to be data-driven. In addition, the examples included are not a complete set of the

types of speech act an offender could use in the context of a crime. The types of

speech acts used by offenders in their crimes therefore needs consideration if all types

of behaviour are going to be fully utilised in the process of case linkage.


Clearly there are some crimes where speech would not be helpful however for

crimes such as sexual assault, it might be particularly useful. Rape is an offence

where there is typically a wealth of behaviours and speech used by the offender. In

fact a silent rapist is very rare indeed (Holmstrom & Burgess, 1979). The current

research therefore focused on developing a system for categorising the speech of

rapists'. Previous research, as well as the current research study, has focused on

allegations where the victim was female and the rapist was male. For simplicity, the

subsequent discussion therefore refers to rapists' as male although the possibility of a

female assisting with a rape is recognised.


*Previous investigations of rapists' speech*

Holmstrom and Burgess (1979) began the research into this field with a

descriptive analysis of rapists' speech as reported by the victim. Over a period of one

year they interviewed 115 female victims of rape who had admitted themselves to the

emergency room of a US hospital. The victims were asked to give their account of

the rape, following which they were specifically asked about the conversation that occurred during the offence. From their interviews the researchers identified eleven themes in the rapists' speech. Holmstrom and Burgess (1979) divided the offence into three stages; gaining access, raping (the offence itself) and departure. The various themes were discussed by the researchers with reference to these three stages.

During the gaining access phase the rapist must gain control over his victim and this can be achieved using threats and orders or a confidence approach. A confidence approach involves the rapist gaining the victim's compliance by hiding his real intentions from him/her, for example, gaining access to a victim's home on the pretence of needing to make an emergency telephone call. During the rape itself, Holmstrom and Burgess (1979) noted a variety of conversation that could occur including the rapist making reference to the victim's enjoyment, seeking personal information, put downs, threats and disclosures. In the departure phase, the rapist's aim is to make his departure whilst avoiding arrest and Holmstrom and Burgess (1979) differentiate between two types of departure: the soft-sell and the tough approach. The soft-sell approach can involve the rapist trying to gain sympathy from the victim or apologising for his actions. In contrast, the tough approach involves the use of threats and orders.

In 1992, Davies published a descriptive analysis of the verbal and non-verbal behaviour of stranger rapists (those who attack victims previously unknown to them). Her analysis was based on 300 victim statements referring to 60 stranger sex offenders. Davies (1992) divided the verbal and non-verbal behaviour during an offence into three types: modus operandi (actions required to carry out the attack),

sexual and personal gratification and attitude and intimacy. The types of speech acts categorised as modus operandi behaviours included reference to previous convictions and contact with the police. Questions related to the victim's sexual history and enjoyment along with acts of verbal cruelty were examples of speech related to sexual and personal gratification. In the final category, attitude and intimacy, Davies (1992) notes that speech within this category can range from intimate conversation to more neutral manipulative language and to verbal abuse.

In 1997, Dale et al. developed this research further. Using an exploratory approach, the speech used by 55 rapists in 252 UK stranger rapes was grouped into similar themes resulting in the identification of 21 categories of speech strategies (see table 1). Information about rapists' speech was extracted from the victims' statements made to the police. In a similar manner to Holmstrom and Burgess (1979), they separated the offence into three stages: approach, maintenance and closure. Based on the analysis of victim statements of 252 UK stranger rapes by 55 offenders they described the occurrence of speech acts within the three stages, suggesting that some speech acts were more common in certain stages than others. Similar findings are reported to those of Holmstrom and Burgess (1979) however Dale et al. (1997) identify additional types of speech that were not reported by Holmstrom and Burgess (1979), for example, indirect versus direct threats. They also introduce three overarching speech strategies: the "do as I say" approach (DAIS), the "foot in the door" approach (FID) and the "door in the face" approach (DIF).

The DAIS approach involves directive speech such as the use of threats and orders whereas the FID approach involves an offender making small demands of his

victim, which then increase in scale.  In contrast to these two, the DIF approach

involves an offender making a large demand which is expected to be refused by the

victim, followed by smaller demands which are more likely to be met due to the moral

obligation imposed on the victim.  This descriptive analysis resulted in the three

overarching categories and twenty additional strategies that a rapist could use

throughout the offence.  Dale et al. (1997) also recognised the possibility that a rapist

might change the speech strategies he uses during an offence for a number of reasons

e.g. victim reaction.  They also discuss the potential of using speech for offender

profiling purposes if links could be made between offender speech strategies and

sociodemographic factors.


(Insert Table 1 approximately here)


This idea was developed further by Kendall et al. (1999) using a sample of

victim statements describing 137 stranger rapes committed by 30 offenders.  The

prototype categorisation system suggested in Dale et al. (1997) was applied to this

new data set to assess its viability and subsequent amendments were made.  The

categorisation system reported in Kendall et al. (1999) has therefore evolved as a

result of the research conducted in both studies.  The evolved system contained the

original overarching categories DIF, FID and DAIS, and 18 distinct discourse

strategies (see table 1).  In addition to the three offence stages suggested by Dale et al.

(1997), Kendall et al (1999) included an additional offence stage, "Interval", during

which a rapist might change strategies.

Having re-developed the categorisation system, Kendall et al. (1999) compared the strategies used by rapists' to their demographic characteristics using chi-square analyses and correlations in an attempt to test the potential for using speech for offender profiling purposes. Several relationships were found however the authors unfortunately did not go on to test the predictive ability of the speech types.

*Critique of previous research*

The studies conducted thus far have been based on data obtained from the victim. Whilst this overcomes the limitation of basing research on the select population of convicted sex offenders, it has its own limitations. A victim's account of a rapist's speech is second-hand data, a limitation that all previous researchers have recognised. How accurately a victim can recall the actual words spoken by his/her attacker is uncertain. However, whilst the actual words might not be remembered, research has suggested that victims are relatively good at remembering the gist of what was said (e.g. Holmstrom & Burgess, 1979; Reyna & Brainerd, 1995).

Whilst the previous studies have advanced our understanding of rapists' verbal strategies they have been developed in a data-driven manner. This means that when they are applied to a different data set they might not generalise well. Some indication that this is the case can be seen in the way the studies have progressed resulting in amendments being made to the categorisation systems. In addition, the use of broad categories, e.g. orders, might fail to capture more subtle differences in the nature of an order, e.g. the degree of politeness shown or the degree of threat implied. Such distinctions might be very important in investigative processes such as case linkage.

The initial study conducted by Holmstrom and Burgess (1979) suffered from a number of ethical problems, for example, the potential for causing psychological harm to the rape victims and the victims' questionable ability to give informed consent following such a traumatic experience. Subsequent studies have overcome this problem by sampling accounts of rape that have been made as part of the investigative process thereby avoiding the victim recounting the traumatising experience of the rape an additional time. Whilst this is a clear methodological improvement, the data sets used by Dale et al. (1997) and Kendall et al. (1999) have been based on series of offences committed by the same offenders. As it has to be acknowledged that there may be differences between one-off and serial offenders (e.g. Bennell, 2002) this may limit the generalisation of the findings to serial offenders only. In addition it could mean that the relationships demonstrated by Kendall et al. (1999) between offender characteristics and speech strategies, might be a product of the stability of offender's behaviour within their own series of offences and are thus confounded. A partial solution to this problem would be a replication with a sample of one-off offenders.

The approach of previous research to the development of a categorisation system for rapists' speech has therefore taken a more data-driven, bottom-up approach. Whilst such a categorisation system will therefore fit the data it is developed with, it is possible that when applied to a new data set its generalisation might be poor. One purpose of the current study is to test the degree of generalisation of Dale et al. (1997) to a new data set.

An alternative more deductive approach is to use theory to develop a system which can then be tested against a data set. The literature from the discipline of linguistics relating to pragmatics was thought particularly relevant to the analysis of rapists' utterances since it relates to what an individual is trying to do with language rather than the actual words spoken. This seems particularly relevant to the context of a rape where the offender is trying to force a victim to engage in sexual acts against their will through the use of verbal and non-verbal behaviour.

*Using pragmatics theory*

Pragmatics theory views the purpose of speech as communicating the speaker's intention to the hearer with this being successful if the hearer understands the speaker's intention (Bach & Harnish, 1979). Leech (1983) differentiates between an utterance's literal meaning (semantics) and its force (the goal the utterance is trying to achieve). In pragmatics and in the current study, the focus is on the utterance's force in terms of what is the speaker trying to do rather than what were the actual words.

In pragmatics, what the speaker is trying to do through the utterance is referred to as the speech act. Speech acts can be categorised based on their force however it is important to note at this point that an utterance can have more than one force (or goal). Leech (1983) discusses several types including directives, commissives and expressives. An utterance has directive force if it is "intended to produce some effect through action by the hearer" (p 106). In the context of a rape this could include ordering a victim to undress or requesting the victim accompany the rapist somewhere. An utterance with commissive force will "commit the speaker to a

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greater or less degree to some future action" (p. 106). This could include a rapist promising to let a victim go. Expressive force in an utterance refers to the speaker "making known [his/her] psychological attitude towards a state of affairs which the illocution presupposes" (p.106). Utterances with expressive force in the context of rape could include where a rapist is justifying his commission of the rape, for example "I just can't help myself" or where he is apologising to or blaming the victim. Bach and Harnish (1979) note that sincerity is not required for an utterance to be successful therefore whether or not the rapist truly accepts responsibility for a rape is immaterial. The category "interrogatives" refers to utterances where the speaker requests information from the hearer (Blakemore, 1992). Finally, an utterance with constative force represents a state of affairs (Mey, 1994), for example, in the early stages of a confidence approach rape the rapist might tell the victim what kind of job he has.

When trying to classify rapists' speech, one approach would involve re-applying the existing categorisation systems to a new data set and making revisions where required. The alternative approach, adopted here, is to develop a speech classification system using pre-existing categories taken from pragmatics theory as discussed above. When coding the rapists' speech in a victim's account, each utterance has to therefore be considered in light of what the offender was trying to do rather than the literal meanings of the words. The small number of categories of pragmatic force outlined above would not however be discriminating enough for investigative practices e.g. case linkage. Discriminative ability can, however be achieved through rating the qualitative nature of each utterance. This study therefore sought to devise a system which at a higher level would categorise an utterance by its

pragmatic force but which at a lower level would capture how it qualitatively differed from, for example, other directives.

Grant and Woodhams (2004) explore this theoretical basis by extending Dale et al.'s (1997) discussion of Levinson's (1979) theory of activity types. It is argued that by viewing a con rape attack as an activity containing three sub-activities of approach, maintenance and closure, this allows insights into the linguistic and power dynamics of the activity. Further to this, existing typologies of speech acts (Allan, 1998; Austin, 1962; Bach & Harnish, 1979; Searle, 1969; Vendler, 1972) are considered and synthesised for the current system. Wider pragmatics theories of, for example, politeness are utilised in the derivation of the subscales.

*Practicalities of using victim accounts*

It is important to recognise at this point that the data used in studies of rapists' speech is poor. Victim descriptions of rape might be in the format of an interview transcript or a victim statement. In either case, the information provided is what the rapist said as remembered by a potentially traumatised victim, as prompted by the interviewer (Dale, 2003). In the latter case, it must also be considered that this recalled information is recorded by a police officer in a statement rather than by the victim, adding a further level where inaccuracies or omissions might occur. Whilst a traumatised victim might find it difficult to recall exactly what an offender said, memory research for verbatim memory has indicated that whilst memory of actual words might be poor, memory for the gist of what was said is much better (e.g. Reyna & Brainerd, 1995 as discussed above). Such findings suggest that analysing a victim's account to determine what an offender was trying to *do* with his/her words,

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which is the focus of pragmatic theory, rather than focusing on the words themselves might be more accurate.

*Rationale and aims*

Whilst previous research has greatly informed our knowledge of the verbal strategies used by rapists during their offences, it has a number of limitations.  The current study aimed to overcome these in various ways.  Firstly, rather than develop a categorisation system from a particular data sample, it was felt that the development of a categorisation system that was grounded in theory was a positive alternative.  The linguistic theory of pragmatics was felt to be most appropriate as it refers to what an offender is trying to do with his/her speech.  This seems appropriate considering the exploitative context of a rape but might also be particularly useful when considering the nature of verbatim memory.  The method of using victim's accounts of the offence as recorded as part of the investigative process was followed.  Whilst this is problematic, since the research is relying on the victim's accurate recall of what speech occurred and the interviewer's ability to elicit and record this information (Kendall et al. 1999), alternative methods are equally, if not more, problematic.  Since the previous studies, transcripts of victim interviews are now more widely used therefore in an attempt to improve on previous research these were sampled where possible.

The study therefore had two aims.  Firstly, to apply Dale et al.'s (1997) categorisation system to a new data set of rapists' utterances to assess its ability to classify utterances and to assess its reliability.  Secondly, the study aimed to test a newly developed classification system in relation to its ability to classify utterances

and its reliability.   Its performance on categorising speech acts into groups based on the pragmatic force of the utterance, which composed the top level of the new coding system was assessed (Study 1).  In addition, the study aimed to further develop the new coding system to capture the qualitative differences between speech acts that may fall into the same broad categories (Study 2).

Study 1: Method

*Participants*

The authors were the participants for study 1; one participant was therefore male and the other female.  Both coders were familiar with the literature on pragmatics and rape and therefore had a degree of expertise in this area.

*Materials*

Examples of the rapists' direct and indirect speech were extracted from sixteen anonymised accounts of rape provided by UK police forces.  Two of these accounts are believed to be linked and the rest were one-off cases.  All were classified as stranger rapes by individual male perpetrators against lone female victims.  Three interview transcripts were included in the set.

In total 188 utterances were extracted and alongside the actual speech used, a small amount of detail was given as to the context in which the utterance was made, for example, "the offender is walking the victim to her car after the rape has occurred".  It was considered that the context in which an utterance is made was

important to note since the goal of categorising speech based on pragmatics theory involves interpreting what the perpetrator was trying to "do".

The participants used two coding schemes. The first related to the system from Dale et al. (1997) shown in Table 1. The second asked the rater to place the utterance into one of five pragmatic categories: constatives/assertives, directives, commissives, acknowledgements/expressives and interrogatives. In both cases, definitions for the various coding categories were available to the coders. These can be seen in table 2.

(insert Table 2 here approx.)

*Procedure*

The classification was conducted on an independent basis, first using the Dale et al. (1997) system and then the new pragmatics-based system. The Dale et al. (1997) system allows for only one coding per utterance (Dale, 2003) therefore in order for comparisons to be made between the two categorisation systems, utterances were coded only once in both cases. As the data is categorical and there were two coders Cohen's kappa was used to measure inter-rater reliability. In addition, the percentage of utterances that could be coded was calculated for both systems.

Study 2: Method

*Participants*

The first and second author along with five research assistants were involved in the development and testing of the new categorisation system's subscales.  Six of the participants were female and one was male.

*Materials*

Ten utterances were extracted from the original statements for each category of utterance force i.e. 10 directives, 10 interrogatives, 10 commissives, 10 constatives/assertives and 10 expressives/acknowledgements along with limited context for each utterance, as outlined above.  Along with the list of utterances, each participant was provided with five different coding sheets, each one referring to a particular type of speech act.  Participants were asked to rate the utterance on the subscales that related to the type of speech act it was.  The subscales for each type of speech act can be seen in table 3.

(Insert table 3 approximately here)

*Procedure*

In study 2, the same procedure was followed as study 1.  The only difference was in the materials presented to the participants and their task.  They were presented with the five lists of ten utterances along with the subscales for each utterance type.  Participants were asked to rate each utterance on the respective subscales e.g. the list of directives were rated on the directive subscales.  Inter-rater reliability of the qualitative subscales was calculated for each category of utterance using Cronbach's alpha in SPSS.

*Ethical Issues*

Of paramount concern in both of the current studies was the protection of the victims' and suspects' identities. Several steps were taken to ensure this. Firstly, all identifiers were removed from the victims' accounts including places, names, ages etc. The victims' accounts were kept in a secure locked filing cabinet until all utterances had been extracted. The hard copies were then destroyed. Rather than provide participants with the accounts in their entirety, they were provided only with the utterances alongside a sentence outlining the context in which the utterance was made. This not only added a final safeguard in protecting victim and suspect identity but also minimised the potential psychological distress that inexperienced raters might experience. In addition, in both studies it was stressed to participants that should they experience any distress reading the material they could stop immediately and discuss their feelings with one of the authors.

Results

Study 1: Comparing the Dale et al. (1997) system with the new pragmatics-based system

*Inter-rater reliability*

Both systems' scored satisfactorily on inter-rater reliability. The Dale et al. (1997) system yielded an overall Cohen's kappa of 0.73. For the top-level coding of the new pragmatics-based system (directives, commissives, constatives/assertives, acknowledgements/expressives and interrogatives), a Cohen's kappa score of 0.78

was recorded.  Both are above the threshold of .70 which is considered to indicate satisfactory reliability (DeVaus, 2002).

*Number of utterances coded*

The main difference between the two systems emerged when the number of utterances coded was compared although both systems were able to classify a high proportion of the utterances.  With the Dale et al. (1997) system 91% of utterances were coded whereas with the new system all utterances were actually coded.

*Usability*

The two coders both commented that they had experienced difficulties in using the Dale et al.'s (1997) system.  This system specifically requires only one categorisation for each utterance and both raters commented that at times utterances did not fit discretely into one category.  For example, if a victim questions a suspect on an issue and the suspect responds by telling the victim to "shut up", this could be coded as "directive/regulatory speech" but also as a "reply to the act of questioning".  In addition, the proportion of uncoded items was in part explained by the fact that a category for insults or verbal abuse was not available in the Dale et al. (1997) system. Finally, the coders experienced difficulties with the number of categories in the Dale et al. (1997) system, which made it unwieldy.

Study 2:  Assessing the qualitative scales for the new pragmatics-based system

*Inter-rater reliability*

The Cronbach's alphas for each of the subscales can be seen in table 4. These range from 0.31 to 0.96. A Cronbach's alpha of 0.70 is considered to be satisfactory (DeVaus, 2002). The subscales that are suffixed by an asterisk in the table therefore have satisfactory inter-rater reliability. Twenty-five of the 33 subscales (76%) yielded alphas indicative of satisfactory to high inter-rater reliability.

(Insert table 4 approximately here)

*Inter-item correlations*

In addition to computing Cronbach's alphas, the subscales were correlated with one another to determine whether any were measuring the same underlying construct. The strength of the correlation along with whether the correlation was significant was considered. A correlation was considered to be strong if it was greater than .70 (Dancey & Reidy, 2001). If a strong significant correlation was found and the subscales appeared to be measuring the same construct the possibility of reducing the number of subscales for the speech act by collapsing the correlated subscales into one was considered.

For interrogatives, the subscales relating to the positive or negative nature of the information sought were highly correlated ($r$ (10) = -.889, $p$ = .001). For commissives, the subscales that captured whether the outcome was positive or negative for the victim were also highly correlated ($r$ (10) = -.948, $p$ < .001). In addition, the subscale for commissives relating to the degree of control the victim has

over the outcome and the subscale relating to the degree of implied contract were also strongly and significantly correlated ($r$ (10) = .719, $p < .05$). With regards to the constative subscales, none of the subscales appeared to be measuring the same construct.

For directives, the subscales for degree of victim control and degree of suspect control were strongly and significantly correlated ($r$ (10) = -.982, $p < .001$). Subscales 4-7, which related to the degree of threat, the explicitness of the threat, the suspect's confidence and the degree of implied physical force, were all highly correlated with one another with $r$-values ranging from .825 - .935 and all p-values were less than .005.    For expressives, as with previous speech acts, the subscales capturing the positive or negative nature of the attitude expressed were strongly and significantly correlated ($r$ (10) = -.870, $p = .001$).

*Summary*

The findings for reliability and inter-item correlations were considered for each subscale.  Subsequently, changes were made to the subscales in light of these findings.  Amended subscales for the speech acts can be seen in table 5.  All were a 7-point Likert-type scale unless otherwise indicated. For interrogatives, the high correlation between positive and negative nature of the information sought in combination with the relatively low alphas resulted in these two subscales being collapsed into one scale, which included a neutral option.  A similar change was also made for the commissive subscales relating to the positive or negative nature of the outcome because of their strong correlation.

(Insert table 5 approximately here)

For directives, the final four subscales were collapsed into one that was titled "degree of threat" because of their strong inter-item correlations. In addition, the subscales for degree of victim control and degree of suspect control, which were strongly correlated and had relatively low inter-rater reliability, were collapsed into one subscale titled "victim vs. suspect control". This was converted into a six-point scale to indicate which party had more control as indicated by the utterance. No changes were made to the subscales for constatives because all had very high inter-rater reliability and none appeared to be measuring the same underlying construct. For expressives, as with commissives and interrogatives, the subscales relating to the positive or negative nature of an attitude expressed were highly correlated and were therefore collapsed into one subscale containing a neutral option.

## Discussion

The development of a categorisation system for rapists' speech that is reliable and usable is an important prerequisite for researchers who wish to develop the potential for using offenders' speech in police investigations. The study aimed to test a previously developed categorisation system (Dale et al. 1997) on a new set of data to determine its reliability, if it could categorise the utterances to which it was applied and to determine how easy it was to use. The system demonstrated high inter-rater reliability and could classify the majority (91%) of the rapists' utterances in the sample. Some problems were however noted when using the system. Firstly, it was noted that the large number of categories made the system difficult to use since remembering all of the categories was cognitively intensive. Difficulty was also

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experienced when coding the utterances because some seemed to fit into more than one category however the suggested application of the system (Dale, 2003), which was followed in this study, does not allow for multiple coding. Finally, the participants noted that there did not appear to be a category for some of the utterances in the new sample, particularly insults.

In contrast, the inter-rater reliability for the pragmatics-based coding system produced a slightly higher reliability measure than the Dale et al. (1997) system. With regard to the proportion of utterances that could be classified, the new system performed to a much better standard categorising all of the utterances. One explanation of the slightly better coding of the pragmatics based system might be the relative experience of the coders with this system over that of the Dale et al. (1997) system.

The goal of developing a reliable categorisation system of rapists' speech is for it to be used in the real world by crime analysts and police officers in the linking of crimes and potentially offender profiling. It is therefore important that any system has high inter-rater reliability and can categorise as many utterances as possible because if utterances cannot be coded this results in a loss of information. Without the reliable coding of utterances, a computerised system that automates the crime linkage process is likely to miss potential links between offences. Considering that the findings of case linkage have the potential to be used as similar fact evidence in legal proceedings (Ormerod, 1999), it is vital that the findings of case linkage are based on reliable systems. Both systems demonstrated satisfactory reliability however the pragmatics-based system outperformed the Dale et al. (1997) system

with regards to the number of utterances coded. Questions could be raised however, as to its ability to discriminate between cases because of the use of only five categories.

To answer this question, the current study included the development and testing of subscales that would capture the qualitative properties of each speech act and would serve to increase the discriminatory ability of the coding system. Examination of the inter-rater reliability scores showed that the majority of the subscales (76%) had satisfactory to high inter-rater reliability however the inter-item correlations indicated that some subscales were strongly correlated with one another and therefore were possibly measuring the same underlying construct. These were examined and where it was considered that this was the case, the subscales were collapsed into one. Where some subscales had lower than satisfactory inter-rater reliability, discussions with the group of coders highlighted where clarification was required as to what the subscales meant.

Subsequent research is underway using an entirely new data set of rape allegations to further develop these subscales and future reliability tests will be undertaken to increase the reliability of all subscales to at least a satisfactory level. Whilst the theoretically-based development of this system should overcome the possible limitation of previous systems being data-bound, this future research will provide the opportunity for this to be confirmed empirically. To overcome the potential limitation of the system's testing being undertaken by the authors, future research is planned which will be undertaken with crime analysts as the participants. In this way, the ability of the real-world clients to use this system can be tested.

An additional area of research, which would strengthen the proposed systems, would be to interview offenders about the linguistic strategies used during their offences.  Asking offenders about their linguistic strategies would allow for comparison between the intended goal of an utterance and the interpretation made by researchers.  This would increase the validity of the coding which currently is based on an inference from the recorded utterance to the speech act.

In conclusion, whilst the pragmatics-based system demonstrated similar inter-rater reliability to the Dale et al. (1997) system, its ability to classify a greater number of utterances is an important advantage when the system's potential use for crime linkage and offender profiling is considered.   Future research is underway which will use this system to categorise rapists' speech and then assess the degree of behavioural consistency rapists' show in the speech used across their offences.  If a high degree of consistency is found, along with individual difference between offenders, this will suggest that speech has the potential to be used in the case linkage process.  Whilst researchers have noted its potential use (e.g. Davies, 1992), no research has previously investigated this potential.

Kendall et al. (1999) and Dale et al. (1997) both recognised the potential use of speech in the profiling of offenders' characteristics.  Kendall et al. (1999) have begun preliminary investigations into this topic using their categorisation system.  The authors of the current study are also engaged in research which will test the ability to predict offender characteristics from the types of speech act and their qualitative properties.  One further contribution this paper makes to the use of speech in any

future automated case linkage system is that the reliability of the coding has been tested. The measured reliability of coding in such automated systems is a significant aspect which seems to be often overlooked.

Given these discussions it can be seen that possible application of the system in operational use could provide significant advances in case linkage work. Whilst the usefulness of speech in the process of linking crimes remains to be demonstrated, if this can be supported the applications could be extensive. For example, such findings might be applied not only to sexual offences but also to other crimes which involve an interpersonal element such as artifice burglary, armed robbery and attempted murder. The focus of the research on a two-way interaction between a single offender and victim leaves room for further analysis of inter-offender speech. Research into group offences (e.g. Porter & Alison, 2001) indicates that linguistic analysis can be valuable in understanding offender group dynamics.

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Table 1: Speech strategies identified by Dale, et al. (1997) and Kendall, et al. (1999).

| Types of rapists' speech strategies |
| --- |
| Directive/Regulatory speech |
| Threats |
| Limitation Reassurance/Diminuation of Threat |
| Lying* |
| Bargaining* |
| Implied Threats* |
| Negotiation |
| Contract |
| Concessions |
| Sexual Questions |
| Non Sexual Questions |
| Reply to Content of Questions |
| Reply to Act of Questioning |
| Replies Which Form Questions |
| Self-disclosure |
| Scripting |
| Announcement |
| Compliments |
| Apologies |
| Excuses |
| Justifications |

Strategies marked by an * are not present in the Kendall et al. (1999) system.

Table 2: Definitions of speech acts and examples given to participants in study 1.

| Definitions and examples |
| --- |

**Constative/Assertive**

An utterance has constative force if it is capable of being true or false.

*Examples: affirming, answering, claiming, concurring, denying, disagreeing, disclosing, reporting, and stating.*

**Directive**

An utterance has directive force if it indirectly or directly gets someone to do or stop doing something.

*Examples: admonishing, asking, begging, dismissing, forbidding, instructing, ordering, permitting, requesting, scripting, and suggesting.*

**Commissive**

An utterance has commissive force if it commits to some degree the speaker to do or not do something.

*Examples: agreeing [to do], bargaining, guaranteeing, offering, and promising.*

**Expressive/Acknowledgement**

An utterance has expressive force (is an acknowledgement) if it expresses the speaker's attitude (or apparent attitude) to some event that is thereby being acknowledged. They acknowledge that a state of affairs or behaviour has occurred but they also outline how the speaker relates to this psychologically.

*Examples: apologising, complimenting, congratulating, excusing, greeting, insulting, justifying, and thanking.*

**Interrogative**

An utterance has interrogative force if the speaker is requesting information from the hearer.

Table 3: Speech act categories and their respective subscales

| Interrogatives | |
|---|---|
| Degree of intimate/personal nature of information sought | Low 1 → High 7 |
| Politeness of request | Low 1 → High 7 |
| Psychological/emotional relevance to suspect | Low 1 → High 7 |
| Practical relevance of information | Low 1 → High 7 |
| Degree of being in response to victim | Low 1 → High 7 |
| Degree of rapport building | Low 1 → High 7 |
| Degree of specificity | Low 1 → High 7 |
| Positive nature of information sought | Low 1 → High 7 |
| Negative nature of information sought | Low 1 → High 7 |
| **Commissives** | |
| Degree of suspect's commitment | Low 1 → High 7 |
| Politeness | Low 1 → High 7 |
| Positive outcome for victim | Low 1 → High 7 |
| Negative outcome for victim | Low 1 → High 7 |
| Degree of victim's control of outcome | Low 1 → High 7 |
| Degree of implied contract | Low 1 → High 7 |
| **Constatives/Assertives** | |
| Degree of rapport building | Low 1 → High 7 |
| Degree of identifying/personal information | Low 1 → High 7 |
| Degree of response to victim | Low 1 → High 7 |
| Intimacy of information | Low 1 → High 7 |

| | |
|---|---|
| Degree of threat | Low 1 → High 7 |

| Directives | |
|---|---|
| Degree of politeness | Not Polite 1 → Very Polite 7 |
| Degree of victim control | None 1 → High 7 |
| Degree of suspect control | None 1 → High 7 |
| Degree of threat | None 1 → High 7 |
| Degree of suspect's confidence | Low 1 → High 7 |
| Degree of implied physical force | None 1 → High 7 |
| Degree of explicitness of threat | Low 1 → High 7 |

| Expressives/Acknowledgements | |
|---|---|
| Degree of concern/empathy for victim | Low 1 → High 7 |
| Degree of perceived responsibility | Low 1 → High 7 |
| Degree of reference to victim | Low 1 → High 7 |
| Degree of specificity | Low 1 → High 7 |
| Degree of positive reaction expressed | Low 1 → High 7 |
| Degree of negative reaction expressed | Low 1 → High 7 |

Table 4: Inter-rater reliability scores for subscales as measured by Cronbach's alpha

| Interrogatives | |
|---|---|
| Degree of intimate/personal nature of information sought scale | 0.91* |
| Politeness of request | 0.91* |
| Psychological/emotional relevance to suspect | 0.84* |
| Practical relevance of information | 0.88* |
| Degree of being in response to victim | 0.75* |
| Degree of rapport building | 0.86* |
| Degree of specificity | 0.76* |
| Positive nature of information sought | 0.54 |
| Negative nature of information sought | 0.57 |
| **Commissives** | |
| Degree of suspect's commitment | 0.46 |
| Politeness | 0.82* |
| Positive outcome for victim | 0.89* |
| Negative outcome for victim | 0.92* |
| Degree of victim's control of outcome | 0.93* |
| Degree of implied contract | 0.66 |
| **Constatives/Assertives** | |
| Degree of rapport building | 0.96* |
| Degree of identifying/personal information | 0.96* |
| Degree of response to victim | 0.91* |
| Intimacy of information | 0.89* |
| Degree of threat | 0.96* |

| Directives | |
|---|---|
| Degree of politeness | 0.95* |
| Degree of victim control | 0.45 |
| Degree of suspect control | 0.31 |
| Degree of threat | 0.94* |
| Degree of suspect's confidence | 0.79* |
| Degree of implied physical force | 0.90* |
| Degree of explicitness of threat | 0.84* |
| Expressives/Acknowledgements | |
| Degree of concern/empathy for victim | 0.92* |
| Degree of perceived responsibility | 0.65 |
| Degree of reference to victim | 0.80* |
| Degree of specificity | 0.65 |
| Degree of positive reaction expressed | 0.92* |
| Degree of negative reaction expressed | 0.83* |

Table 5: Amended subscales for the five speech acts: interrogatives, commissives, directives, constatives/assertives and expressives/acknowledgements.

| Interrogatives |
| --- |

How intimate was the information sought?

How polite was the offender?

How much emotional relevance did the query have for the offender?

How much practical relevance did the query have for the offender?

How much was the utterance in response to the victim?

How much was the utterance intended to build rapport?

How specific was the utterance?

Was the information sought cast positively or negatively? (with a neutral option).

| Commissives |
| --- |

How polite was the offender?

Does the utterance imply a positive or negative outcome for the victim? (with a neutral option)

How much implied control did the victim have?

How much commitment did the offender make to carry out the action?

| Constatives/Assertives |
| --- |

How much was the utterance intended to build rapport?

How identifying was the information disclosed?

How much was the utterance in response to the victim's speech or behaviour?

How intimate was the information stated?

How threatening was the utterance?

| Directives |
| --- |

How polite was the offender?

Does the utterance imply the offender or the victim has more control? (6 point scale)

How threatening was the utterance?

| Expressives/Acknowledgements |
| --- |

How much does the offender recognise the victim's feelings?

How much responsibility did the offender appear to take?

How much reference was made to the victim?

How specific was the utterance?

How far was the attitude expressed positive or negative? (with a neutral option).

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