Psychiatric aspects of the assessment and treatment of sex offenders

Harvey Gordon & Don Grubin

Abstract

Training in general and forensic psychiatry in the assessment and treatment of sex offenders is in need of considerable improvement. Although most sex offenders are not mentally ill, many are subject to substance misuse, abnormal personality traits, personality disorder, learning disability or dysphoric mood, and in some organic factors will be involved. Comprehensive assessment of sex offenders includes a full history and mental state evaluation, obtaining a collateral history from other sources, observation, psychometric testing, and psychophysiological methods of assessment, including penile plethysmography. Trials of the use of the polygraph are also under way. The treatment of sex offenders, especially those with paraphilias, may include medication with selective serotonin reuptake inhibitors or anti-libidinal agents. Ethical considerations can be problematic, but a balance can often be found between the welfare of the offender and the safety of the public.

What constitutes unacceptable sexual behaviour varies between societies, and within society over time. Issues relating to gender, age, relationship, aggression, the definition of consent, and location all influence whether a particular sexual act is considered to be legal or illegal (Grubin, 1992). Sexual motivation may also drive crimes that in themselves may not seem to be explicitly sexual, such as burglary (for instance, when women’s clothing is stolen) or homicide. Whereas the vast majority of sex offenders are male, the issue of women as perpetrators of child sexual abuse has been taken more seriously in recent years; the extent of the problem, however, is difficult to determine, at least in regard to offences against children. In Western societies women are not only allowed greater freedom than men in their physical interactions with young children, but where older male children are concerned, sexual activity between an adult woman and a boy might not be conceptualised by the child as ‘sexual abuse’ at all.

Role of the psychiatrist

Contributions to an understanding of sexual offending may come from a range of perspectives, including those of psychology, criminology, sociology, law, ethics, psychiatry, anthropology, policing and even theology. Although an eclectic approach combining all these aspects would be the most comprehensive, differences in viewpoint and priorities can make this nearly impossible – exemplified by the difficulties of reconciling the interests of the public (and the victim) with those of the offender.

In a recent meeting, the Forensic Faculty Executive of the Royal College of Psychiatrists acknowledged that the assessment and treatment of sex offenders requires an improvement in the standard of training of forensic psychiatrists (further details from the author on request). As things stand, the ability of forensic psychiatrists to afford appropriate advice to general psychiatrists and other professionals is limited. More training is needed in the diagnosis of paraphilias, understanding the links between mental disorders and sexually abnormal behaviour, the advantages and limitations of psychophysiological methods in assessment and treatment, the use of medication in addition to psychological methods in the treatment of sex offenders, and risk assessment.

Assessment and treatment of sex offenders in prison is mostly undertaken by psychologists and prison officers, whereas in the community this is usually done by probation officers. Experience with sex offenders is also found in the high-security hospitals, to a lesser extent in medium secure units,
and in specialist units in the community such as the Portman Clinic in London and the Sexual Behaviour Unit in Newcastle. Clinical psychologists and probation officers working with sex offenders in the community would often welcome the involvement of psychiatrists if knowledgeable input were offered. In cases where sexual offending begins in adolescence, the psychiatrist may be able to ascertain whether the sexually abnormal behaviour is part of a transient instability of psychosexual development, an evolving paraphilia, part of a conduct disorder or associated with an inciting mental illness.

For adult sex offenders in the community, the role of multi-agency public protection panels (MAPPPs) is of primary importance (Home Office, 2003). Established under the Criminal Justice and Court Services Act 2000, these panels started to operate formally from April 2001 throughout England and Wales; they involve close liaison between police and probation services, and ensure that arrangements are in place to assess and manage the risks posed by sexual and violent offenders. They provide a framework for inter-agency working with social services departments, housing authorities, youth offending teams, mental health trusts and organisations representing victims. Psychiatrists may become involved either by representing a mental health trust on a MAPPP, or in relation to a patient under their care. In the latter situation issues of confidentiality may arise, as a balance might need to be struck between the health and welfare of the patient and the safety of the public. Psychiatrists need to be aware of the ethical guidelines laid down by the General Medical Council, which note that disclosure may be necessary where a failure to disclose information could expose the patient, or others, to risk of death or serious harm: disclosure, however, should be no more than is needed to reduce risk, albeit in a context of cooperation.

**Relationship between mental disorder and sexual offending**

Most sex offenders do not have a major mental illness (Grubin & Gunn, 1991). However, people with schizophrenia or related psychoses may commit sex offences or show abnormal sexual behaviour; this may be related to the psychosis itself, either directly (Smith & Taylor, 1999) or indirectly owing to disinhibition secondary to the psychosis (Craigatt & Hodes, 1992), or it may be related to the presence of deviant sexual fantasies (Smith, 1999). Affective disorder in itself is not usually associated with serious sexual offending, although patients with hypomania may behave in a sexually disinhibited manner leading to offences ranging from indecent exposure to indecent assault (Brockman & Bluglass, 1996), and patients with paraphilias not infrequently have a comorbid history of dysthymia or depression (Kafka & Prentky, 1992).

Sexual offending may also be associated with organic brain damage (Hucker et al, 1988), learning disability (Walker & McCabe, 1973), substance misuse (Williams & Finkelhor, 1990) and personality disorder (Reiss et al, 1996). Where the offending behaviour is driven by sexually deviant fantasies, a clinical diagnosis of a paraphilia may be made using the ICD–10 classification codes F65.0–65.8 (World Health Organization, 1992) or code 302 in the DSM–IV (American Psychiatric Association, 1994). Sexually deviant fantasies and related deviant behaviour, however, are also common in the non-offending population (Templeman & Stinnett, 1991), although only in a proportion of sex offenders are paraphilias found.

**Assessment of sex offenders**

**Diagnostic issues**

A full history and a comprehensive mental state evaluation should be undertaken. Where mental illness is diagnosed, its relationship, if any, to the sexual offending or sexually abnormal behaviour requires evaluation; it is therefore particularly useful to record the age of onset both of the mental illness and the sexual offending. The presence of conduct disorder, personality disorder of antisocial, borderline or narcissistic type, learning disability, elements of organicity, or substance misuse should be noted.

Assessment of the offender must include a psychosexual history of both sexual fantasy and sexual behaviour, but self-report is often unreliable. It is important to detect indicators of hypersexuality (for example, frequent masturbation and numerous sexual partners) and of sexual preoccupation or rumination (frequent or intrusive sexual fantasies, or subjectively uncontrollable sexual urges). The nature of the individual’s fantasy life may indicate the presence of a paraphilia. Where a paraphilia is diagnosed, the frequency and level of intensity of the sexual fantasies should be assessed, including any escalation towards acting out the fantasies. In cases of mental illness, evaluation should determine whether the deviant fantasies developed concurrently with it, or preceded it and later became incorporated into it (Baker & White, 2002). It is also important to remember that often the number of offences committed exceeds that registered in the criminal record. Where there is a history of substance misuse, its relationship if any to the sexual offending should be assessed. Wherever possible, relevant
family and/or friends should also be seen, and relevant documentation requested from psychiatric units, social services, probation and school.

**Psychological assessment**

A number of psychological characteristics have been associated with sexual offending. For example, in England and Wales the prison service’s sex offender treatment programme characterises these as dynamic risk factors, and categorises them into four domains (Thornton, 2002):

- sexual interests (including sexual preoccupation, as well as sexual preference for children or violence)
- distorted attitudes and beliefs (so-called cognitive distortions, and beliefs supportive of rape)
- socio-affective management (for instance, emotional regulation and intimacy difficulties)
- self-management (for instance, poor problem-solving abilities, lifestyle impulsiveness).

Information regarding these characteristics can be obtained through not only clinical interview but also psychometric testing. A battery of psychometric tests developed within the Sexual Treatment Evaluation Project (STEP), which evaluated the efficacy of a range of community and prison treatment programmes in England, measures constructs such as emotional loneliness, social competence, cognitive distortions, and deficits in empathy with children, and appears to differentiate those who have benefited from treatment from those who have not (Beech et al., 2002). Psychological testing of personality may also be appropriate.

It is important to differentiate psychological characteristics associated with risk of reoffending (for example, cognitive distortions) from those that relate more to engagement in treatment rather than to risk itself, such as denial or lack of victim empathy, neither of which has as yet been demonstrated to predict reoffending (Hanson & Bussiere, 1998). It is also important not to confuse the role of actuarial risk assessment instruments, the best validated of which is probably Static-99 (Hanson & Thornton, 2000), which perform better than clinical assessment in determining risk of recidivism in the long term, and clinical approaches to assessment, which are needed to identify treatment targets and to determine indicators of current risk (Grubin & Wingate, 1996).

Actuarial approaches provide an estimate of the likelihood of reconviction only. They are based on historical,unchanging or slowly changing variables such as age and number of convictions. In order to make meaningful decisions in clinical settings, consideration must be given to dynamic risk factors, which relate more specifically to the individual offender. Dynamic risk factors are probably best divided into two types: those that are relatively stable, such as an offender’s attitudes or ability to ‘regulate’ his sexual and more general behaviour, and those that can change more rapidly, such as cooperation with supervision and access to victims (Hanson & Harris, 2000).

In addition to clinical and psychometric evaluation, psychophysiological methods can also be used to contribute to the overall assessment of sex offenders.

**Penile plethysmography**

Because sex offenders often show high levels of denial, assessment based on self-report alone is unreliable. Penile plethysmography provides a means of determining sexual arousal by measuring increases in penile volume or circumference in response to visual cues (slides) or auditory cues (stories) (Barker & Howell, 1992). The technique is more commonly used in North America than in Britain, where its use has been largely limited to high secure hospitals and some prisons in the context of sex offender treatment programmes. In our opinion it should also be available for assessment and treatment of patients in the community and in medium secure units. Some studies have shown that risk of sex offence recidivism is associated with plethysmographic evidence of response to paedophilic stimuli (Hanson & Bussiere, 1998) and to non-sexual violence (Rice et al., 1990).

The use of penile plethysmography is not without controversy, however, with some opponents arguing that this technique is overly intrusive, and others that it amounts to showing pornography to sex offenders. There are also concerns about a lack of standardisation of the methodology across centres, limited control data for normal populations, and the ability of people taking the test to fake non-arousal by various means (Simon & Schouten, 1993). None the less, if used as one of an array of assessments, phallometry can provide useful information, particular in terms of identifying focuses for treatment (Harris & Rice, 1996; Launay, 1999). However, it should be used only in clinical settings, and not as a means of determining guilt or predicting recidivism.

**Abel assessment**

To overcome the intrusiveness of penile plethysmography, Abel et al. (1994) devised a method of assessing sex offenders consisting of a questionnaire about sexual thoughts, fantasies and behaviour, and a computerised assessment of gaze times at slides depicting a range of pre-pubescent, teenage and...
adult males and females, and scenes suggesting paraphilias. Overall the Abel assessment has been found to be most accurate with child molesters who prefer pubescent boys, but the technology has not yet been widely tested.

**Polygraphy**

Whereas the main use of penile plethysmography is the assessment of sexual preference, the polygraph is used to detect deception. Its use for investigative purposes, for example by the police or for pre-employment screening, is thought by some to be problematic, but when used in the context of treatment or supervision following conviction it can be an effective means of overcoming denial and detecting when offenders are engaging in high-risk behaviours that might lead to reoffending (English, 1998).

Polygraphy is based on autonomic nervous system responses associated with the anxiety of deception. Although a more accurate assessment of false negative and false positive rates is still necessary, the former is probably less than 10% and the latter in the region of 20%. For those already convicted of sexual offences, however, the detection of lies is probably less relevant than the technique’s ability to facilitate disclosures. One of us (D.G.) has been involved in pilot studies in England in which the polygraph was used in the treatment and supervision of sex offenders, during which offenders reported a significant amount of problematic behaviour that was not known to their supervisors; further research is in progress (Grubin, 2004). A good review of polygraphy has been published by the National Academies of Science (2002).

**Box 1** Factors that may be associated with elevated rates of sex offending

- Higher number of sex offences
- Previous criminal history
- Offences against male children > extrafamilial girls > incest
- History of more than one type of sex offence
- Phallometric evidence of response to paedophile stimuli
- Phallometric evidence of response to non-sexual violence
- Elevated score on Hare Psychopathy Scale (Rice et al, 1990)
- At time of index offence, reduced self-esteem, impaired victim empathy or increased anger may be important
- Being a victim in childhood of sexual abuse, especially if severe and prolonged, is a risk factor for abuse of own children and for committing sex offences in adolescence and adulthood
- Presence of violent sexual fantasies
- Longstanding social isolation (present in some sexual murderers)
- Attitudes of patient to women (part of assessment of sex offenders)
- Attitudes of patient to sex with children, e.g. that the child enjoys it (part of assessment of paedophilia)
- Presence of cognitive distortion (where patient incorrectly perceives or rationalises that the victim is consenting); may be associated with denial in sex offenders
- Choice of occupational location to facilitate access to potential victims
- Use of sadomasochistic or paedophilic pornography
- Presence of comorbid mental disorders:
  - misuse of alcohol
  - cortical pathological changes, especially in the temporal lobe
  - diagnosis of learning disability
  - diagnosis of personality disorder
  - in offenders with schizophrenia, note any link between the psychosis and the sex offence
  - patients with hypomania may show sexual disinhibition
  - some authors view sex offending as a compulsive disorder
- Motivation for treatment – non-compliance or failure to complete treatment is associated with sexual recidivism

**Risk assessment of sex offenders**

Comprehensive assessment of risk in sex offenders is a complex process, requiring a good knowledge of static and dynamic risk factors and the use of a number of assessment methods, including clinical interviews, psychometric testing, psychophysiological evaluation, observation and the collection of collateral historical information (Box 1). The evaluator should be clear on the type of risk being assessed – the likelihood, consequences, frequency or immediacy of offending – and the meaning of terms such as ‘low’, ‘medium’ and ‘high’.

**Treatment of sex offenders**

Medicalisation of sex offending can perhaps be attributed to Kraft-Ebing in his widely influential *Psychopathia Sexualis*, published in 1885. The notion, however, that sex offenders might have a mental...
disorder requiring treatment rather than be manifesting behaviour requiring punishment is subject to debate both by the public generally and within the medical profession (Bowden, 1991; Icenogle, 1994).

In the minority of sex offenders who are mentally ill, adequate treatment of the underlying mental illness may in some cases be sufficient to reduce the risk of further sex offending. However, in other cases the patient’s abnormal sexual fantasy life may be independent of psychosis and require additional treatment.

There has been a marked growth in recent years in cognitive–behavioural treatment of sex offenders. This therapy aims to assist the offender take responsibility for the behaviour leading to the offence, and develop cognitive and behavioural controls to enable him to avoid or escape the high-risk situations that could lead to reoffending (Marshall et al., 1999). Other cognitive–behavioural techniques such as olfactory aversion and covert sensitisation have been demonstrated to be effective in reducing deviant arousal. None of them provides a cure, however, and offenders must continually practise the skills they have learned. Although psychiatrists only occasionally become directly involved in cognitive–behavioural programmes, they have an important contribution to make in a number of other treatment areas.

Surgical castration

The treatment of sex offenders by surgical castration is now essentially of historical interest only, although studies showed a considerable reduction in sexual recidivism (Ortmann, 1980). By the 1970s surgical castration for this purpose had largely been abandoned, partly because of the availability of hormonal medication which can achieve the same end but is reversible, and also because of ethical objections to medical interventions that could be perceived as a form of punishment.

Hormonal treatment

The use of oestrogens to reduce sexual drive in sex offenders dates from the 1940s, but the practice fell into disuse because of the frequency of side-effects, including thrombosis, nausea, breast enlargement, carcinomatous change and feminisation (Bowden, 1991). Oestrogens were replaced by cyproterone acetate in Britain, Europe and Canada, and by medroxyprogesterone acetate in the USA (where cyproterone is not available). Long-acting gonadotrophin-releasing hormone (GnRH) agonist analogues have been a more recent (and more expensive) addition to the drugs used to suppress libido.

Cyproterone acetate is a steroid analogue first synthesised in West Germany in 1961. It has anti-androgenic and progestogenic effects, reducing serum levels of testosterone, luteinising hormone and follicle-stimulating hormone, but increasing serum prolactin levels. It acts mainly by blocking testosterone receptors. The main uses of this drug are the reduction of sexual drive and, in higher dosage, the treatment of prostatic carcinoma (Bradford, 1985). In Britain it is usually given orally, although elsewhere in Europe a depot formulation is licensed (available in Britain on a named-patient basis). Numerous case reports and open trials have demonstrated the efficacy of cyproterone acetate in reducing sexual drive, as have a smaller number of double-masked, placebo, crossover studies in Canada, although because of the drug’s side-effects masking is difficult (e.g. Bradford, 1988). Bradford reported that cyproterone resulted in a significant reduction of plasma testosterone concentration and level of sexual arousal measured by penile plethysmography, as well as self-reported reduced frequencies of masturbation, sexual tension and sexual fantasies.

Rates of withdrawal from treatment with cyproterone acetate are high, and this drug should therefore almost always be prescribed in combination with psychological treatment, either individual or group-based. Its side-effects are similar to those of surgical castration but are usually reversible on discontinuation. Liver and endocrine function should be monitored, and note taken of the development of osteoporosis or depressed mood.

Medroxyprogesterone acetate is the main anti-libido preparation used in the USA. It works by inducing testosterone alpha-reductase in the liver, which enhances the metabolic clearance of testosterone and hence reduces circulating testosterone levels. It is administered as a depot in a dosage of 300–500 mg weekly. Like cyproterone acetate, it should be combined with psychotherapy. Side-effects, which are usually reversible on discontinuation, include weight gain, mild lethargy, cold sweats, hot flushes, nightmares, hypertension, elevated blood glucose levels and reduced testicular size (Walker & Meyer, 1981).

Meyer et al. (1992) studied 40 men, most of whom were paedophiles, treated with medroxyprogesterone at a weekly dosage of 400 mg for periods ranging from 6 months to 12 years; the men also received group and individual psychotherapy. A control group of men who refused drug treatment but received psychotherapy were followed over the same period. Eighteen per cent of those taking the drug reoffended (35% after it was discontinued), compared with 55% of those in the control group.

Long-acting gonadotrophin-releasing hormone agonist analogues may have an increasingly important role in the treatment of sexual deviation.
and hypersexuality (Bradford & Kaye, 1999). These drugs reduce testosterone secretion to castration levels (levels found after surgical castration). In Britain the GnRH agonist analogue goserelin briefly drew publicity in 1988, when the Mental Health Act Commission opposed its use in a patient living in the community who had consented to the treatment, on the grounds that it was a depot hormone implant considered to be a hazardous treatment under Section 57 of the Mental Health Act 1983, and was therefore subject to special safeguards. However, when the case came to court, it was determined that goserelin was neither a hormone nor an implant and so was not covered by section 57, and its use required no special safeguards.

Dickey (1992) reported a marked decrease in sexual thoughts and behaviour with minimal side-effects using the long-acting GnRH agonist analogue, leuprolide acetate (which is more commonly used in North America), in a patient who had not responded over several years to treatment with medroxyprogesterone or cyproterone. Rosler & Witztum (1998), in an Israeli uncontrolled study of 30 men with paraphilias treated in the community with the long-acting GnRH agonist analogue triptorelin for up to 42 months, claimed that treatment abolished completely their deviant sexual fantasies, urges and behaviour. Both these drugs carry with them the side-effects associated with reduced androgen secretion, including a reduction in bone mineral density which requires monitoring (Rosler & Witztum, 2000).

**Psychotropic medication**

Sexual dysfunction is a common side-effect of antipsychotic medication, leading one forensic psychiatrist to suggest that such medication is a form of involuntary castration (Stone, 1992). The butyrophenone benperidol, which has a weak anti-libidinal effect, is sometimes used specifically to control sexually inappropriate behaviour in psychotic patients (Sterkmans & Geerts, 1966), but its effects in this respect are unreliable and unsupported by evidence, and its use for this purpose cannot be recommended.

Subsequent to the successful use of buspirone in the treatment of a patient with transvestic fetishism (Fedoroff, 1988), a number of reports have suggested the potential value of selective serotonin reuptake inhibitors (SSRIs) in the treatment of paraphilia. A range of mechanisms have been proposed to explain their mode of action, including a reduction in obsessive-compulsive behaviour (associated with sexual rumination, intrusive fantasies and sexual urges), elevation of mood, lowering of impulsivity, lessening of anxiety and facilitation of non-paraphilic arousal (Greenberg & Bradford, 1997). Although double-masked, placebo-controlled trials are as yet unavailable, the potential advantages of SSRIs are that they are better tolerated than hormonal treatments, and general psychiatrists are more familiar with their use. As with any medication, their use should be combined with psychotherapy, and they should not be relied upon alone, particularly when a significant risk to the public exists.

**Dynamic psychotherapy**

There is an extensive psychoanalytical literature on the theory of the perversions and sexual deviation, rooted originally in Freud’s centrality of sexuality in human psychopathology. The Portman Clinic in London in particular has specialised in the outpatient treatment of people with paraphilias (Glasser, 1998). However, there is little published research to indicate whether psychodynamic psychotherapy (group or individual) can reduce recidivism, even when there is improved insight and functioning: two major psychodynamically based textbooks on forensic psychotherapy, excellent in many respects, quote no study reporting the outcome in sex offenders of treatment with dynamic psychotherapy (Cordess & Cox, 1996; Rosen, 1996).

**Ethical issues**

Despite the existence of paraphilia as a diagnosis in both the ICD–10 and DSM–IV, many psychiatrists do not regard sexual deviance as a psychiatric entity. However, the public views sex offending in general and paedophilia in particular with a high level of opprobrium. There is a strong and understandable demand by the public for protection from sex offenders, either through detention or treatment; but even when sex offenders are sent to prison, most (even those serving life sentences) will be released at some stage. In such circumstances it can be unclear whether the psychiatrist is expected to act as treatment provider or public protector. The fact is that both are required, and therefore psychiatric input will usually be most effective when delivered as part of a team approach, involving a range of disciplines and even agencies. None the less, the dilemma does exist as to whether the primary role of treatment is to benefit the patient or to protect the public. In reality it must do both.

Another ethical problem relates to obtaining evidence of the efficacy of treatment. The potential to use double-masked, randomised controlled trials of treatment in sex offenders is limited by the risk to the public and the difficulty that would arise if a sex offender randomised to a non-treatment
intervention (whether psychological or pharmacological) were to reoffend.

Other ethical issues include those of the validity of consent given by a prisoner or detained patient in agreeing to treatments such as anti-lido medication, given that an element of coercion may be perceived relating to release or discharge, although it is not clear that the situation is different from that of any detained patient for whom medication is advised.

Readers interested in the ethics of the assessment and treatment of sex offenders are referred to Mellela et al (1989), Bowden (1991) and Icenogle (1994), and for a discussion about the treatment of sex offenders by psychotherapy to Adshead & Mezey (1993).

Conclusions

Only a minority of sex offenders have a mental illness, but this does not mean that there is no role for psychiatry. Many sex offenders have abnormal personality traits or personality disorders, and some may have a diagnosis of paraphilia; others may have a learning disability, or biological factors that contribute to their offending.

The assessment and treatment of sex offenders is rarely undertaken comprehensively in psychiatric settings in Britain, even by forensic practitioners. We advocate the establishment of multi-disciplinary, and indeed multi-agency, teams that can make use of the full range of clinical, psychometric and psychophysiological methods available for evaluation and management. As part of such a team psychiatrists can make a far greater contribution to assessment and treatment than they could on their own.

References


---

### Multiple choice questions

1. **Sex offences are:**
   - a committed more by women than men
   - b never committed by people with mental illness
   - c more commonly committed by people with learning difficulties
   - d much the same across all societies
   - e only committed by adults.

2. **Paraphilias:**
   - a are defined in both ICD–10 and DSM–IV
   - b are more common in women than men
   - c involve aspects of sexual deviance
   - d if present alone are grounds for detention under the Mental Health Act 1983
   - e are never associated with dangerous behaviours.

3. **Methods of assessing sex offenders may include:**
   - a magnetic resonance imaging
   - b penile plethysmography
   - c full blood count
   - d psychological testing
   - e serum folate measurement.

4. **Drugs that may be helpful in the treatment of sex offenders include:**
   - a selective serotonin reuptake inhibitors
   - b anti-androgens
   - c anticonvulsants
   - d long-acting gonadotrophin-releasing hormone agonist analogues
   - e antihypertensives.

5. **There is a sound evidence basis for the treatment of sex offenders with:**
   - a dynamic psychotherapy
   - b cognitive-behavioural therapy
   - c counselling
   - d anti-androgens
   - e lithium.

---

### MCQ answers

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>F</td>
<td>a</td>
<td>T</td>
<td>a</td>
<td>F</td>
</tr>
<tr>
<td>b</td>
<td>F</td>
<td>b</td>
<td>F</td>
<td>b</td>
<td>T</td>
</tr>
<tr>
<td>c</td>
<td>T</td>
<td>c</td>
<td>F</td>
<td>c</td>
<td>F</td>
</tr>
<tr>
<td>d</td>
<td>F</td>
<td>d</td>
<td>F</td>
<td>d</td>
<td>T</td>
</tr>
<tr>
<td>e</td>
<td>F</td>
<td>e</td>
<td>F</td>
<td>e</td>
<td>F</td>
</tr>
</tbody>
</table>