

Garden Paths, Red Lights and Crossroads: On Finding Our Way to Understanding the Cognitive Mechanisms Underlying Jokes

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Abstract. The primary objective of this paper is to postulate a tripartite division of jokes according to three major incongruity-resolution mechanisms underlying their incremental development, and to review the existing models of joke interpretation in the light of the joke categories advanced here. Most of these well-entrenched frameworks, as will be shown, fail to capture all the three mechanisms of jokes.

In the garden-path mechanism, the incongruous punchline evokes a concealed sense of the preceding text, bringing to light its initially covert ambiguity. The hearer cancels the first effortlessly made (default/salient) interpretation in order to prioritise another, compatible with the import of the punchline. Secondly, the red-light joke ends with a surprising punchline which neither proves the set-up ambiguous nor invalidates any earlier inferences but brings unexpectedly incongruous piece of information, which is then rendered congruent with the first part of the text. Thirdly, the distinguishing feature of the crossroads category is that it is already the set-up that includes the focal incongruity, entailing incomprehensible premises which surpass absurdity typical of many jokes. Consequently, the hearer cannot successfully complete the comprehension process of the set-up until the punchline (frequently also incongruous) is introduced, after which any incongruity is resolved.

Keywords: incongruity, resolution, joke mechanisms, crossroads mechanism, garden-path mechanism, red-light mechanism.

1. Introduction

The genre of (*canned*) *joke* is generally considered to be one of the prototypical manifestations of humour, which is why it has aroused avid scholarly interest in linguistics and other disciplines. One of the first conceptualisations of jokes' structuring is credited to Hockett (1972/1977), according to whom, a joke comprises a *build-up* and a *punch*. This definition is often repeated in literature, albeit with the use of different terminology. The first part of a joke is referred to as *set-up* (Sherzer 1985), *setting* (Navon 1988) or *build-up* (Norrick 2001), whilst the latter one is widely called *punchline* (e.g. Oring 1989, Hetzron 1991, Attardo and Chabanne 1992, Dydel 2009a). On the other hand, a (jocular) *riddle* is comprised of a question and an answer to it. The former coincides with a set-up, while the latter with a punchline. In the case of *one-liners* (one-line jokes characterised by brevity), for the sake of semantic precision, the term "punchline" can be substituted for the term *switch* (Dydel 2009a). Here, for the sake of brevity, "punchline" is used as the umbrella term, unless specific one-liners are discussed.

There have been claims that one joke may recruit more than one punchline (Hockett 1972/1977). Admittedly, this is possible only if the term "punchline" is interpreted as any joke producing mechanism. The punchline proper (which interrupts the flow of the text) can be only one in each joke and must occur at its end (Oring 1989), while other focal elements in a joke can be conceived as *jab lines* (e.g. Attardo 2001, Tsakona 2003).

Various researchers have developed competitive models of joke construction, the most significant of which will be succinctly revisited in Section 4. The drawbacks and merits of those approaches notwithstanding, yet another one is proposed here concerning the

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incremental/on-line materialisation of jokes (Dyner 2009a). It is argued that three major mechanisms of linear joke comprehension can be distinguished, depending on the stages and means of *incongruity emergence* and *incongruity resolution*. Specifically, the aim of the present paper is to propound a tripartite division of jokes in reference to their incremental development: the *garden-path* mechanism, the *red-light* mechanism and the *crossroads* mechanism (Dyner 2009a)¹, as well as to verify the applicability of the existing models of joke interpretation in the analysis of the three joke types. It must be stressed that, subscribing to the three patterns, longer jokes and one-liners manifest multifarious structuring and may also include various embellishments, indispensable for successful joke-telling, but of secondary importance to the operation of the main mechanisms discussed here.

2. Incremental Organisation of Jokes According to the Incongruity-Resolution Model

As the joke teller produces a jocular text, the receiver must actively participate in the comprehension process, so that humour can arise (Wenzel 1989, Suls 1972). Conceptualised theoretically, the processes of production and comprehension are compatible. In other words, the hearer processes and comprehends a joke in accordance with the joke teller's communicative plan. This is also why the workings of the joke can be presented as a general process of how the joke text develops, without any focus on the production or reception end, i.e. the speaker's or the hearer's² activities, which are taken to tally with the prototypical model. The majority of contemporary linguists and psychologists (for references, see e.g. Forabosco 1992, 2008; Attardo 1994; Martin 2007; Dyner 2009a, 2011b) agree that the workings of jokes (and verbal humour, in general) conform to the *incongruity-resolution* (I-R) framework first put forward by Suls (1972, 1983) and (Shultz 1972)³. Recent developments of the model will be presented in the course of this article.

In a nutshell, the I-R model holds that the sine qua non for humour emergence is incongruity. The hearer first recognises and then resolves incongruity according to an adequate cognitive rule which renders the incongruous element somehow congruent with the whole text (and/or non-verbal stimulus). Thereby, the hearer appreciates the emerging humour. Humorous incongruity displays innumerable manifestations. Additionally, the whole gamut of cognitive rules underpinning incongruity resolution can be found, some of which will appear in the discussion of examples in Section 3. Also, numerous cognitive factors are central to the process, such as the interpreter's cognitive safety or the element of surprise, not all of which, for reasons of space, can be discussed here (see Dyner 2009a, 2009b, 2011b; Forabosco 1992, 2008; Martin 2007, and the references therein). There are, nonetheless, a few issues which need addressing, because of their relevance to the present discussion.

One of the main problems is whether incongruity is actually expected. Suls (1972) proposes that while he/she is processing a joke, the hearer expects a congruous ending and is

¹ While the tripartite division was first presented in Dyner (2009a) concerning one-liners and witticisms, this paper attempts to expand and elucidate the earlier postulates in the context of jokes taken as a whole, both one-liners and longer jokes.

² The terms "speaker" and "hearer" are here used technically (the communicative channel and mode regardless) in reference to all producers and receivers/interpreters of jokes, respectively, via different modes and channels of communication. Needless to say, rather than being told in conversation, jokes can be circulated in the media, on the Internet or in published volumes.

³ Even if Shultz put forward the two-stage incongruity-resolution model in his unpublished PhD thesis already in 1970, that is earlier than Suls (1972), he is not the one to be credited for its prevalence in the literature. This is not only because the unpublished work may not be widely known among linguists but also because, in his articles, Shultz (1972, 1974, 1976) does not elaborate on the on-line interpretation process, while the succinct descriptions which he provides pertain not to all jokes but only to those couched in ambiguity, whether in the set-up/riddle's question or in the punchline/riddle's answer/trigger.

surprised at the incongruity that emerges from the final portion of the text. Mulkay (1988) finds fault with Suls's assumption and endorses an opinion that in jokes, in contrast to serious communication, "recipients are not expecting or seeking congruity" (Mulkay 1988, p. 37). This is partly true, insofar as knowing they are reading/listening to a joke, interpreters must have a backgrounded assumption that a surprisingly incongruous element will follow. However, if a joke is to succeed, they must be oblivious to the nature of this incongruity, surprising as it is, as a result. Obviously, a hearer can still enjoy a joke with which he/she is familiar, but (unless he/she has forgotten what the punchline is) this will be more the matter of the joke tellers' rendition than the emergence and resolution of incongruity.

A related query concerns the notion of *violated/defeated expectations* as the sine qua non for humour (e.g. Suls 1972, Nerhardt 1976, McGhee 1979, Ziv 1984). While it may be true that some forms of humour (including some jokes) capitalise on defeated expectations, it is hardly convincing that all jokes operate on disconfirming the hearer's expectations at the stage of the incongruous punchline, as some authors claim (e.g. Suls 1972, Shultz 1976, Coulson 2001). In reference to a joke, expectations should be understood as the hearer's predictions concerning the punchline and need not be mistaken for assumptions gleaned on the basis of the set-up, which will indeed arise in all cases. This approach is predicated on the stipulation that the interpreter makes predictions and enjoys expectations, analysing a text, while incongruity in jokes emerges due to the violation of such expectations (Suls 1972). Indeed, in some jokes (e.g. based on the distortions of sayings or proverbs, such as "If God had intended us to fly, he would have made it easier to get to the airport"), hearers may make default predictions only to have them thwarted, when the text finishes otherwise (Ritchie 2002, 2004). Dubious, however, is the postulate that interpreters always, in the case of all jokes, consciously develop expectations about the forthcoming text. Engaged in the process of joke comprehension, interpreters do not normally attempt to guess or predict what will come next. They do glean meanings as a joke text unfolds and may even discern certain interpretative patterns, especially in reference to the *three-part joke*⁴ (such as Example 4), but it is not the case that they consciously expect that the third part will mirror the first two (as regards Example 4, thinking that the third woman will report on a positive change). As already suggested, familiar with the workings of jocular texts, interpreters will only nurture expectations of a sudden shift in meaning and/or the breach of the established pattern in whatever respect, which the punchline does confirm. It may be, therefore, more reasonable to posit that joke recipients most frequently make on-line inferences as the text progresses, without actually looking ahead and extrapolating the ending of the joke from what they already know given the set-up. The punchline, by nature incongruous, carries a meaning that cannot have been envisaged hitherto. The criterion of disconfirmed expectations can only be applied post factum, that is, after the emergence of the punchline, which the hearer can deem, with the benefit of hindsight, as one that he/she cannot possibly have expected and/or one that violates backgrounded expectations or assumptions that he/she may have had initially.

What is also important here is that a joke need not involve a single incongruity only. Rothbart (1976) and Rothbart and Pien (1977)⁵ differentiate between *possible* and *impossible incongruities*, and *complete* and *incomplete* resolutions thereof. Impossible incongruities (conflicting with one's knowledge of the world) cannot be resolved outside the humorous frame, and thus rendered meaningful, as a result of which they remain to be considered

⁴ This is a frequently occurring joke type which entails three characters (e.g. representatives of different nationalities) and/or three parallel events, in which the last one is always different and promotes incongruity (cf. Examples 4 and 8).

⁵ The authors' postulate is that the degree of humour perceived is commensurate with the number of incongruity resolutions, the number of unresolved incongruities, the degree of each incongruity, the difficulty in resolving the incongruity and the degree of its resolution. The intensification of any of the first three produces a rise in the humorous force.

impossible. Additionally, Rothbart and Pien (1977), as well as McGhee et al. (1990), maintain that the punchline may actually bring only partial or no resolution, or may even introduce new incongruities or absurdities. By the same token, Attardo et al. (2002) differentiate between *focal* and *background* incongruities (see also Samson and Hempelmann 2011), the former being the essence of a joke, yet the latter affecting its workings as well. Background incongruities may pertain to the underlying absurdity of a joke, which can never be fully resolved according to the standards of the real world. Jokes then involve a willing *suspension of disbelief* (Attardo 1994, cf. Sacks 1978). This corresponds to Aubouin's⁶ (1948) *justification/acceptance* or Ziv's (1984) *local logic*, which allow for the masking of absurdity. This can also be conceived of as peculiar resolution of incongruity, which is simply taken for granted. As conceptualised by Ziv (1984), local logic brings explanation to any incongruity within the reality of a joke, which the hearer is willing to acknowledge (see Attardo and Raskin 1991; Attardo 1994, 1997). Similarly, according to Sacks (1974, 1978), *implausibilities* are simply masked by the adequate structuring of a joke. Therefore, incongruities in one joke may be a few and they may occur on various levels, which is why the resolution of one of them need not entail the resolution of another. The I-R model, however, is concentrated on the *central/focal incongruity* brought about in the punchline, not on the second-order/background ones. Interestingly, even the punchline and the resolution it invites are naturally encompassed by a joke's local logic. As Mulkay (1988, p. 35) rightly notes, "congruity is frequently incongruous when judged by ordinary standards."

In addition, incongruity cannot be removed entirely at the resolution stage (Suls 1983; Mulkay 1988; Ruch and Hehl 1998; Forabosco 1992, 2008; Attardo and Raskin 1991). In other words, resolution does not completely reconcile the incongruous elements (Suls 1983) and does not entail the elimination of all incongruity but only guarantees arriving at an incongruity which makes sense, a *congruent incongruity* (Forabosco 1992). If all incongruity were resolved and the text were perceived as perfectly sensible and congruous, the processing of the joke text would come to a halt and no humour appreciation would ensue (Forabosco 2008). This is perhaps what Oring (e.g. 1989, 2003) advocates under the notion of *appropriate incongruity*, rather than ascribe to the well-established I-R view. Oring (1989, p. 351) hence states that the punchline "triggers the perception of appropriate incongruity" (here regarded as incongruity resolution).

A variety of other problems may also emerge in the course of the analysis of any humour examples. Those do not undermine the plausibility of the I-R model but highlight additional factors, which only testify to the complexity and multifarious workings of jokes. For instance, the resolution may sometimes seem to be far-fetched or shallow, while the interpreter may be willing to put forth more cognitive effort in pursuit of a better understanding/resolution.

Essentially, the most fundamental feature inherent to almost all jokes is that "a joke's ending does not follow directly from its preceding text" (Suls 1972, p. 84). The punchline "presents a seemingly irrelevant idea, or it may seem incongruous with respect to the main body of the joke. Or it may seem to open up an entirely new trend of thought"⁷ (Fry 1963, p. 33-34). Interestingly, there do exist cases, albeit rare, when the most easily available interpretation of the punchline does not immediately produce incongruity but is perfectly consistent with the set-up, while the interpreter, cognisant of the fact that a joke is intended, will search for an incongruous interpretation only to have to resolve it, as in the case of "How was your stay at a nudist camp?" "The first three days were the hardest." (Forabosco 1992, p. 62, quoted from McGhee 1979, p. 6). The punchline in this example is ambiguous, with the

⁶ However, Aubouin fails to appreciate that incongruity and errors of judgement and language are legitimate in the faulty logic of humour (Attardo 1994).

⁷ The notion of diversion of the train of thought can be found already in Freud's (1905) work.

incongruous meaning emerging a little later than the congruous one (Forabosco 1992). This is also what Oring (2003, p. 2) seems to refer to as a "seemingly appropriate relationship [...] supplanted by a sense of incongruity".

Admittedly, the general I-R comprehension model manifests a practically inexhaustible number of implementations, with virtually each joke having its own distinctive characteristics in terms of the introduction and the resolution of incongruity. Attempts at compiling lists of logical mechanisms or devices underpinning jokes (e.g. Hetzron 1991, Attardo 2001, Attardo et al. 2002) may be correct but cannot be said to be exhaustive beyond a shadow of a doubt, given language users' creativity in constructing jokes. Nevertheless, it is here argued that three universal cognitive joke mechanisms can be distinguished.

3. Three Mechanisms Underlying Jokes

Three cognitive mechanisms are proposed here concerning jokes' incremental interpretation in the light of the I-R framework. Specifically, the three categories of jokes are governed by the emergence and resolution of incongruity in terms of the textual elements activating them.

3.1. The Garden-Path Mechanism

Some jokes rely on deceiving the hearer into arriving at a readily available interpretation which has to be ultimately cancelled, on the strength of an incongruous punchline. The latter evokes the concealed sense of the preceding text, bringing to light its ambiguity, and cancels the first effortlessly made interpretation. Since the hearer is led up the garden path, such texts can be regarded as hinging on the garden-path (GP) mechanism. The prerequisite for the GP joke is thus twofold. The first part of the text must entail *covert ambiguity*, with only one meaning being effortlessly accessible to the hearer, and the second part of the text (the punchline) must invalidate the interpreter's earlier inference and prompt him/her to backtrack and reprocess the initial part of the text to appreciate an alternative, hitherto unobserved, meaning congruent with the import of the punchline (Dyner 2009a).

Given the nature of this mechanism, the set-up of a GP joke involving covert ambiguity is dubbed the *lead-up* (Dyner 2009a). In longer jocular texts, it is not always the whole lead-up but only its ambiguous chunk that generates covert ambiguity. It may appear in the narrative or in a character's utterance, so that the joke hearer (as well as any listening character(s)) arrives at the intended interpretation, which then he/she needs to suppress.

The covert ambiguity may be of a *semantic* (specifically *lexical*) kind, or a *pragmatic* kind, while the co-text facilitates, or at least does not obstruct, the ambiguity. The central element of the lead-up is then a lexically or pragmatically ambiguous chunk whose *salient* meaning (Giora 1997, 1999, 2003) or *default* meaning (Levinson 2000, cf. 1983, 1995, 1998; Jaszczolt, e.g., 1999, 2004, 2005), respectively, is the only one perceived upon the first reading/hearing of the joke. In the case of pragmatic ambiguity, the initial "obvious" interpretation conducive to the GP effect resides in *generalised conversational implicature* (Grice 1989a [1975], 1989b [1989]) better conceptualised as *presumptive meaning* (Levinson 2000) or default *presupposition*, each of which is subsequently cancelled due to the punchline.

Example 1

The patient's family gathered to hear what the specialists had to say. "Things don't look good. The only chance is a brain transplant. This is an experimental procedure. It might work, but the bad news is that brains are very expensive, and you will have to pay the costs yourselves." "Well, how much does a brain cost?" asked the relatives. "For a male brain, \$500,000. For a

female brain, \$200,000." The patient's daughter was unsatisfied and asked, "Why the difference in price between male brains and female brains?" "A standard pricing practice," said the head of the team. "Women's brains have to be marked down, because they have actually been used."⁸

Example 2

I'm not suddenly a dirty old man. I've been practising since 1949.

Example 3

Women are like Angels . . . always up in the air and harping about something.

The pragmatic ambiguity in the first joke (Example 1) inheres in the doctor's statement on the prices of brains. While the character in the joke is at all loss to acknowledge the rationale underlying the difference in the prices of male and female brains, the joke receiver makes a pragmatic inference, based on folk presupposition, namely the gendered stereotype frequently deployed in jokes, that women's brains are poorer (smaller or less efficient) than men's. This default interpretation needs to be cancelled, given the doctor's last sentence, which initially strikes the hearer as being incongruous with the meaning gleaned so far. This punchline sheds new light on why women's brains are cheaper, while the resolution of incongruity rests on invalidating the earlier inference. In Example 2, the default interpretation made on the basis of the first sentence is the denial of the epithet (the speaker suggests that he is not a dirty old man). The second sentence, however, incongruous as it is, invites the hearer to cancel this inference in favour of a congruous one, anchored in a different scope of negation (it is not suddenly that the speaker has become a dirty old man). Incidentally, some may suggest that this example is grounded on syntactic ambiguity, but the pivotal mechanism seems to be primarily of a pragmatic character, even if facilitated by the structure of the utterance (cf. Dyrel 2009a). In Example 3, based on a metaphorical comparison, the hearer derives an implicature that women are benevolent and tender. This interpretation is cancelled by the switch, which brings out two hitherto covert features shared by the compared elements, features which are only facilitated by the two lexical ambiguities in the switch. One from each pair of meanings is germane either to angels (who fly in the air and play the harp) or to women (whose presence can always be felt and who are always talking about the same thing). Interestingly, this example relies on both pragmatic ambiguity in the lead-up, the most important one for the GP mechanism, and lexical ambiguity in the switch.

On the other hand, semantic (particularly, lexical) ambiguity in the lead-up of the GP joke is claimed to exploit such phenomena as: homonymy, polysemy (together with its subtype centred on deidiomatization, i.e. the literal reading of an idiom) or homophony. Syntactic ambiguity is relatively rare in jokes and if it does occur, it can usually be explained in terms of lexical ambiguity, for the shift in the grammatical category entails also a shift in the lexical meaning (see Dyrel 2009a).

Example 4

An international feminists' meeting. One of the delegates postulates, "Sisters! No more female exploitation! We won't cook or do the laundry for men." The motion is unanimously accepted. At the next meeting, some delegates share their experiences. An English woman starts, "I returned home and said, 'John, from now on, I won't cook or do the laundry.' The

⁸ All the jokes serving as exemplification data here come from the author's corpus collated over the past few years from various Internet databases.

first day I saw nothing, the second day I still saw nothing, and the third day I saw John boiling an egg." The whole audience applauds. A French delegate starts speaking. "I returned home and I said, 'Pierre, from now on, I won't cook or do the laundry.' The first day I saw nothing, the second day I still saw nothing, and the third day I saw Pierre washing his underwear." A standing ovation follows. A Polish woman starts speaking "I returned home and I said, 'Janek, from now on, I won't cook or do the laundry.' The first day I saw nothing, the second day I still saw nothing, but the third day I could see with my left eye."

Example 5

Are you free tonight, or will it cost me?

Example 6

As you know, I don't repeat gossip, so listen carefully.

Inasmuch as full-fledged jokes tend to be structurally complex, the set-up may accumulate tension before the GP mechanism is enforced, with the punchline ultimately provoking the reinterpretation of only a small portion of the preceding text, as Example 4 corroborates. The bulk of this three-part joke is not rooted in the GP mechanism, for, technically, it entails no ambiguity, despite the occurrence of the polysemous word, for the alternative sense is never germane to the first two parts of the joke. Not until the Polish woman's contribution is ambiguity involved. It is at the stage of the incongruous punchline coinciding with the last clause she produces that the interpreter realises that her entire utterance needs to be retraced for the second interpretation capitalising on the polysemy of "saw", so that the incongruity underlying the first and second parts of her verbalisation can be resolved. Interestingly, the first interpretation of the polysemous item is strengthened by the *priming effect* materialised in the earlier part of the joke. It operates on a repeated pattern presenting the two women's similar accounts contingent on the meaning of the word "saw" in the sense of "observed". This salient meaning also seems to hold in the Polish woman's utterance, only to be ultimately replaced by the second sense "being capable of perceiving", as she finishes the utterance. The workings of the garden-path mechanism can be more easily appreciated on the basis of one-liners. The first one (Example 5) is couched in the polysemy of "free", with the salient interpretation being supported by the facilitating co-text, amounting to a conventional form of invitation, which is defeated by the incongruous switch ("will it cost me") in favour of a less available interpretation. The hearer has to backtrack to the beginning of the one-liner and make an interpretation consistent with its ending. The last example above (Example 6) is dependent on the fixed idiomatic collocation "repeat gossip" carrying a single salient interpretation, which has to be rejected on the grounds of the incongruous switch ("listen carefully"), which activates another understanding of the preceding part of the text, based on deidiomatisation, and renders the set-up and the switch congruent.

The term "garden path" appears to have been addressed, yet not fully elaborated on, in humour studies (e.g. Hockett 1972/1977, Yamaguchi 1988, Attardo and Raskin 1991, Attardo et al. 2002). On the other hand, various authors have ventured a specious statement that jokes, on the whole, entail hidden meaning in the set-up, which transpires only later, when the joke finishes. Such researchers may then be claimed to have unwittingly suggested that the garden-path mechanism underpins all jokes, for example:

The comic effect arises when an alternative, non-favored and therefore non-expected interpretation is revealed, at the punchline, as the correct one. (Dascal 1985, p. 95)

The humorous effect comes from the listener's realisation and acceptance that s/he has been led down the garden path (...) In humour, listeners are lured into accepting presuppositions that are later disclosed as unfounded. (Dolitsky 1992, p. 35)

Contrary to what the authors quoted above may suggest, not all jokes entail ambiguity, and hence two competitive interpretations of the set-up, only one of which is initially overt. Nor do all jokes end in a punchline causing the suppression of the meaning inferred and the enforcement of an alternative interpretation, so far unobserved. In other words, the GP mechanism is not inherent to all jokes. It is here argued that two different mechanisms can be distinguished. By analogy to the term "garden-path mechanism", those are metaphorically dubbed the *red-light mechanism* and the *crossroads mechanism*. It should also be mentioned that, even if rarely, individual jokes may revolve around mechanisms characteristic of two types. For instance, the crossroads mechanism (incomprehensibility of the set-up) can be entwined with the GP mechanism (hidden ambiguity of the set-up).

The garden-path mechanism, critics may observe, evinces the central feature of the red-light mechanism (see Section 3.3), namely the stage where the focal incongruity comes into being. The garden-path mechanism may then be classified as a subtype of the red-light mechanism. However, the former needs to be set apart, given its status in humour studies. As already indicated, the term "garden path" can be found in the literature, whilst the mechanism as such has been mistakenly attributed to all jokes. Since the garden-path mechanism is distinguished, the red-light mechanism must be defined as being devoid of covert ambiguity in the set-up.

3.2. The Crossroads Mechanism

The second mechanism underlying humorous texts can be metaphorically dubbed the crossroads mechanism, with the crossroads symbolising the hearer's inability to decide what interpretative path to take, not observing or envisaging any alternatives. The paramount feature of the crossroads mechanism is the element of incomprehensibility in the set-up, which surpasses absurdity or impossibility typical of many forms of humour governed by their "local logic". This element is then a matter of incongruity that cannot be viewed merely as one of the background incongruities, which are of secondary importance to the workings of the joke (cf. Section 2). Contrary to the incongruity introduced by the punchline, the central/focal incongruity in the set-up does not always need to violate the coherence of the text, but may constitute a conundrum indicating the hearer's lack of knowledge, or a cognitive/inferential obstacle manifesting itself in the violation of common knowledge or assumptions the hearer has. This is in accord with the psychological definition of incongruity as a diversion from the cognitive model of reference (see e.g. McGhee 1979; Forabosco 1992, 2008; Martin 2007). The resolution of the central incongruity is postponed until the punchline, which tends to bring another incongruity and to invite its resolution as well. Because the punchline does not need to follow directly from, or be coherent with, the preceding part of the text, it may also be seen as the second manifestation of the focal incongruity. When the central incongruity appears in the set-up, the interpreter is at a loss to make rational inferences, not to mention default ones, with regard to this incongruous part of the text. In essence, the hearer cannot put an interpretation on (some part of) the text of the set-up, for example the characters' utterance or action, trusting that this cognitive problem will be soon resolved thanks to more data.

In the case of a longer crossroads joke, an incomprehensible element may arise at any stage of the set-up but always before the punchline. The interpreter is aware of the *humorous frame* signalled by the speaker (see Dyner 2011a and the references therein) and predicts that a resolution will be possible due to the punchline, the nature of which he/she cannot envisage.

This unpredictability surrounding what is tacitly expected is the key to the humorous effect. Being used to jokes' mechanics and nurturing a backgrounded assumption that a punchline will follow and somehow resolve any incomprehensibilities, the hearer (a language user) may sometimes be oblivious to the cognitive dissonance the text causes in his/her mind, especially if it is only momentary. Admittedly, the crossroads mechanism is more transparent in the case of one-liners, in which the first part of the text causes the interpreter to consciously appreciate his/her being at a loss to understand it. This category is also epitomised by riddles, in which the hearer is explicitly invited to acknowledge his/her inability to answer a vexing question, to which incongruity is inherent. Additionally, because the punchline immediately follows the incongruous chunk, an incongruity and its resolution occur instantly one after another. In either case, from a theoretical vantage point, full-fledged jokes and one-liners which manifest incongruity in the set-up display the same general characteristics. To summarise, the hearer cannot fully comprehend the set-up, until the necessary information is revealed at the stage of the punchline, which allows resolving the incongruity in the set-up, together with any other incongruity the punchline introduces.

An implicit indication of the crossroads mechanism can be traced in Sacks's (1978, p. 251) analysis of a three-part joke, in which the first two parts establish a pattern to be challenged when the third item introduces contrast and thereby offers a puzzle, which can be conceived of as an incongruity. The hearer is then invited to resolve it, capitalising on the forthcoming punchline. The resolution is the hearer's responsibility since "while the puzzle is solvable from the punch line, the solution isn't asserted in the punch line but will have to be interpreted out of it" (Sacks 1978, p.258). The hearer's inference, nevertheless, would not be possible without the import of the punchline. Also, the hearer's inferential processes may exhibit different degrees of complexity, depending on the difficulty of finding an appropriate cognitive rule.

Example 7

A tour bus driver is driving with a load of seniors down the highway when he is tapped on the shoulder by a little old lady. She offers him a handful of peanuts which he gratefully accepts and proceeds to eat. After a few minutes, she taps him on the shoulder again and she hands him another handful of peanuts. The little old lady repeats this gesture about three more times. When she is about to hand him another batch, he asks the little old lady, "Why don't you eat the peanuts yourself?" "We can't chew the peanuts because we've no teeth," was her reply. The confused driver asks, "Why do you buy them then?" The little old lady replies, "We just love the chocolate coating!"

Example 8

Three men, a Frenchman, an Italian, and a Jew, were condemned to be executed. Their captors told them that they had the right to have a final meal before the execution. They asked the Frenchman what he wanted. "Give me some good French wine and French bread," he requested. So they gave it to him, he ate it, and then they executed him. Next it was the Italian's turn. Give me a big plate of pasta," said the Italian. So they brought it to him, he ate it, and then they executed him. Now it was the Jew's turn. "I want a big bowl of strawberries," said the Jew. "Strawberries!!! They aren't even in season!" "So, I'll wait..."

Example 9

Some people's brains are like the prison system...not enough cells per person.

Example 10

Never marry a tennis player. Love means nothing to them.

Example 11

What do you call an anorectic with a yeast infection? A Quarter-pounder with cheese.

In Example 7, the scenario of a bus tour is hardly incongruous and the same applies to the kind of offers the elderly lady repeatedly makes to the driver, whether judged according to real-life norms or viewed as the local logic of this joke. This cannot be said of the import of the lady's answer to the driver's question, which introduces incongruity. The reason for the elderly couple having the peanuts is elusive, and so one may observe an incongruity between the couple's buying peanuts and not being able to eat them, as indicated by the driver's second question. The woman's reply to it coincides with the punchline of the joke. The punchline presents an ostensibly incongruous fact (that the elderly like the chocolate coating), whose relevance to the question is scarcely obvious. The hearer resolves it, together with the earlier incongruity, rendering the whole scenario coherent: the peanuts must have had chocolate coating, which the elderly people did eat only to give the remainder to the driver, irrespective of the hygienic aspect of the "nice" gesture. While the punchline sheds new light on the meaning of the set-up (specifically, the source/state of the peanuts), it cannot be said that the interpreter (or the driver) have been led up the garden path, for he/she has not been overtly invited to make any relevant inference, and the new fact becomes transparent only at the stage of the punchline.

Example 8 represents the standard three-part joke in which the third man's reply, as tacitly expected, violates the pattern established by the other two men (each of whom orders a traditional dish typical of their respective nationalities). The hearer thus encounters an incongruity and is not able to resolve it, by inferring the Jewish man's rationale for his choice, until the surprising and incongruous punchline supplies the hearer with new information (the man's willingness to wait for strawberries to grow), which is incongruous in the context of the execution. Consequently, the hearer arrives at the understanding and resolves both incongruities, realising that the Jewish man has cleverly chosen the food with a view to postponing his execution.

Illustrated by Example 9, metaphorical comparisons which appear incomprehensible to interpreters constitute a peculiar category of the crossroads joke. The interpreter cannot find the point(s) of similarity between the incongruous elements compared/juxtaposed, which the switch elucidates, thanks to the punning element therein ("cell": "a prisoner's small room"/"the smallest entity of an animal of plant"). Initially, the switch strikes the hearer as being incongruous, but then he/she reconciles the two parts of the one-liner and resolves the incongruity in which the comparison is embedded. Similarly, in Example 10, the rationale for the statement conveyed in the first sentence escapes understanding, while the incongruous switch, anchored in a pun ("love": "a score of zero in a tennis match"/"a very strong feeling of affection"), helps resolve the first incongruity within the realm of the local logic underlying this joke. Finally, in the riddle (Example 11), the interpreter is first faced with a baffling question to which he/she does not know any reply. The question seems to centre on an irresolvable incongruity, which, paradoxically, he/she expects to be soluble when given the reply by the joke teller. The incongruous answer introduces an unexpected reference to a type of hamburger. This incongruity, as well as the one on which the question pivots, is resolved when the ambiguity in the answer is discovered ("quarter pounder") and the weak semantic link is found ("yeast infection" and "cheese").

On the whole, the crossroads mechanism stands in marked contrast to the garden-path mechanism, in which the initial interpretation process takes place by default, or the red-light mechanism, where on-line processing of the set-up progresses unobstructed, on the understanding that the joke may display its local logic.

3.3. *The red-light mechanism*

Interpreting a red-light joke, the hearer follows the interpretation path unobstructed until he/she needs to stop upon encountering the surprising red light (the punchline) diverting the interpretative process to a destination which cannot have been envisaged earlier. After a momentary pause caused by the red light at the stage of the punchline, the hearer continues the interpretation process by resolving the incongruity, having found the route to be followed. The pause often remains unobserved if incongruity resolution does not pose major problems.

The red-light mechanism may appear to be the prototypical materialisation of the I-R model, inasmuch as it manifests neither of the central features peculiar to the garden-path mechanism or the crossroads mechanism. The red-light joke ends with a surprising punchline which does not prove the set-up ambiguous or invalidate any earlier inference. Nor does the central incongruity arise before the stage of the punchline, even though second-order incongruities typical of local logic are commonplace. Generally, this joke category captures any joke whose punchline introduces the focal incongruity and simultaneously invites its resolution. To reformulate, the red-light joke capitalises on the punchline, which can be deemed as incongruous with the preceding part of the text but is made congruous according to an appropriate cognitive rule, which has innumerable manifestations, with more or less complex inferencing performed by the interpreter. Thus, only partial support is given to Mulkay's claims that "the meaning implicit in the punch line both follows from, and at the same time contrasts with or contradicts, the initial frame of reference (1988, p. 31) or that "an essential feature of the standard joke is that the change of interpretative perspective accomplished in the punch line is brought about in a covert or implicit manner" (1988, p. 29). It is difficult to judge what this "implicitness" or "covertness" actually means in the author's view. Nonetheless, it must be conceded that in some jokes the punchline triggers complex inferential work on the part of the interpreter, whilst in others the punchline offers explicit resolution, which is why it is easy for the hearer to arrive at an understanding. In either case, the punchline may be performed in the form of literal meaning or an implicature (Grice 1989a, 1989b), which holds for all the three types of jokes.

Example 12

Two attorneys were walking out of a pub and a beautiful young lady walks by. One attorney turns to his associate and comments "Boy, I would like to fuck her!" The other attorney replies "Out of what"?

Example 13

A naughty boy draws a penis on a black board. Lady teacher rubs it off. Next day he draws a bigger one and writes: "REMEMBER THE MORE YOU RUB THE BIGGER IT GETS!"

Example 14

I'm drunk and it's a beautiful day... trees are singing, birds are swaying. (slurred speech)

Example 15

Public psychological service units offer a lot of vacancies for young aspiring and optimistic people who would like to die of starvation.

Example 16

Yes, I am drunk and you're ugly but tomorrow I'll be sober. (Attributed to Winston Churchill)

As the first joke (Example 12) develops, the hearer constructs a coherent interpretation of the set-up, considering the interaction to be a casual chat between two colleagues who have met in a pub. The punchline of this joke, coinciding with the second lawyer's turn, is incongruous, as it seems to be irrelevant to the interlocutor's comment. The resolution stems from the hearer's realisation that the second attorney must have misunderstood his colleague's turn, regardless of the salient intended meaning and the contextual factors also promoting it. The second attorney hence perceived an unintended meaning of the tabooed word, which is because he is avaricious, in accordance with the stereotype. It must be stressed that despite the ambiguity in which the joke is couched and the fact that the two meanings are consecutively activated, this is not an instance of the garden-path mechanism. The joke hearer is not deceived (by the joke teller or the character as his/her mouthpiece) and does not have to reject the first reading of the ambiguous word as being irrelevant/unintended by the speaker, but only acknowledges the misguided inference on the part of the other character. Example 13 testifies to the claim that the incongruity of the punchline may emerge only after its congruous meaning has been activated, as already reported in Section 2. The incongruity of the punchline coincides with the hearer's appreciation of its ambiguity, while the resolution depends on his/her realising that it carries two sensible meanings: a relevant message to the teacher on the part of the disobedient student, who will make bigger drawings on the board, and a tabooed reference to a biological fact, which is also pertinent to the context, given the nature of the pupil's drawing.

The shorter jokes constituting the remaining three examples, if interwoven into non-humorous discourse and not signalled as jokes, not only end with incongruous switches but may also be surprising thanks to their unexpected humorousness. The one-liner in Example 14 ends with a switch contingent on chiasmus, i.e. a reversal in the order of words in the two clauses, whereby two nonsensical meanings arise. The resolution of the incongruity comes with the hearer's recognition of the nature of the mistake and appreciation that it is the result of the speaker's (pretended) intoxication. Example 15 displays a switch with incongruously pessimistic information (dying of starvation), which violates the assumptions one can generate on the basis of the initially optimistic import of the first part of the joke (or perhaps, witticism carrying genuine meaning outside the humorous frame, cf. Dyrel 2011a). The resolution of the incongruity resides in the hearer's realising that the public service sector tends to offer low-paid jobs (at least in some countries). In Example 16, the incongruity rests on the ostensibly irrelevant information provided in the last clause (the speaker's future state). Seeking its relevance, the interpreter will need to take account of the parallel between the speaker's states (intoxicated vs. sober) and infer that a similar parallel has to be made in reference to the addressee, even though no concession has been made for her. Thus, the interpreter arrives at the resolution, understanding the speaker's implicated disparagement of the addressee (the woman will stay ugly), which coincides with the classic case of the Gricean conversational implicature triggered by maxim flouting (Grice 1989a, 1989b). It is noteworthy that, as is the case of many one-liners based on implicit switches, the resolution, that is gleaning the implicit meaning, necessitates a coherent (and sometimes effortful) analysis of the entire utterance.

4. The Three Types of Jokes and the Existing Theoretical Models

This part of the paper will succinctly address the applicability of a few competitive views on joke production/interpretation processes in the analysis of the three joke types (see also Dyrel (2009a)).

4.1. Suls's Incongruity-Resolution Model

While the generalisation of the I-R model produces no misgivings as to its applicability to the whole gamut of humour manifestations, the model, as originally championed by Suls (1972, 1983), is much more detailed, and hence possibly restricted in use. Suls (1972) states that joke listeners or readers glean interpretative narrative schemata⁹ on the basis of the text and make predictions as the joke proceeds. The joke interpreter "uses the preceding text of a joke to structure what will appear next by formulating a narrative schema. The schema is formulated on the basis of the initial input. (...) Next, predictions about forthcoming text are formulated from the schema" (Suls 1972, p. 86). However, the punchline leads to incongruity and a moment of surprise, after which the second stage of interpretation is initiated: resolution. The interpreter tries to find a cognitive rule to render the punchline congruent with the preceding text with recourse to heuristics, the basic one being a means-end analysis. Upon finding an appropriate cognitive rule, the interpreter arrives at an understanding of the joke. In other words, the recognition of incongruity is followed by its resolution via the logical adoption of another set of assumptions. Suls defines the cognitive rule only as "a logical proposition, a definition, or a fact of experience" (1972, p. 82) and adds that each individual may formulate a different explanation of one joke, which highlights an idiosyncratic aspect of the comprehension process. Essentially, there may be as many rules as there are jokes (and interpreters' perceptions of them) and, as a result, a new rule needs to be (intuitively) generated for each joke.

This model seems to have been postulated to cover all jokes, heedless of their formal structuring and the variability of the underlying mechanisms. The only condition that the model imposes on jokes is the existence of a punchline introducing some form of incongruity, which must be somehow made congruous. In Suls's words: "the beginning and middle parts of a joke are generally congruent, and the middle usually follows from the beginning; it is only at the ending that one's expectations are abruptly disconfirmed" (Suls 1972, p. 86). Two queries may be voiced, regarding this quotation. Firstly, as already observed, incongruity does not need to stem from the disconfirmation of expectations. It is not always the case that the interpreter actually does make, or can make, predictions, conceiving of how the joke will develop, but rather, when the incongruous element emerges, he/she will recognise that it is surprising and could hardly have been expected (Dyner 2009a). Secondly, the definition states that the punchline both introduces incongruity and prompts its resolution. If inspected closely, Suls's model does not embrace jokes based on the crossroads mechanism, inasmuch as it assumes that incongruity does not arise until the punchline and that the hearer can form a coherent interpretation of the text. As evidenced earlier, jokes representing the crossroads mechanism exhibit incongruity already at the stage of the set-up, while the punchline gives grounds for its resolution. The resolution in this case entails rendering the punchline congruent with the preceding text, as originally conceptualised by Suls, which necessarily entails explaining the incongruity that has occurred in the set-up, a type of incongruity that Suls does not allow for. Suls (1972, p. 86) explicitly states: "If predictions do not match, then one looks to see if this is the end of the joke. If it is not the end, the program cycles back to reformulate a new schema which will be more consistent with text at this point." Suls hence avers that when it is before the punchline that the hearer's expectations are disconfirmed, or (as claimed here) when the hearer encounters a cognitive obstacle in the form of incongruity, he/she must backtrack the text interpreted so far and find another interpretative schema that will capture this incongruous element, rather than wait for the forthcoming punchline to resolve it. In opposition to this, it is here argued that the set-up can involve an

⁹ Suls here uses this term in the sense supported in psychological studies: a chunk of knowledge, and thus a chunk of knowledge that is developed on the basis of a text.

incongruous/incomprehensible element and the hearer's attempts at reinterpretation of the set-up would be of no avail, which is why the crossroads joke must be distinguished.

4.2. *Bisociation as Schema Conflict*

Even though Norrick (1986, 1987) is not preoccupied with on-line processing of jocular texts, elements of such an approach can also be found in his papers on *bisociation* (Koestler 1964) and *schema conflict* as the mechanisms underlying verbal humour. His approach is premised on the assumption that in humour two schemas are activated, either because the speaker pretends to misinterpret the schema in force and thus imposes another one, or because the speaker deliberately produces a verbalisation which activates two conflicting schemas. A schema conflict occurs on one level, while conflict resolution takes place on a higher level (Norrick 1986). The phenomena of *lower-level conflict* and *higher-level fit* (Norrick 1986) may be regarded as being parallel to incongruity and its resolution, respectively. In Norrick's view, humour derives from the bisociation of schema conflict, since the lower-level conflict does not cease to exist, notwithstanding the higher-level congruency.

Norrick's (1986) approach is not homogenous and boils down to a detailed discussion of various categories of humour, as he sees fit to corroborate the tenet of schema conflict and a higher-level fit. However, a generalisation that can be proposed on the basis of Norrick's examples is that one-liners rely on evoking a schema and skewing it immediately afterwards, while longer jokes entail schema conflict introduced at the stage of the punchline, which surprises the audience and is subsequently resolved at a higher level (see Dyrel 2009a). This conceptualisation is reminiscent of Suls's (1972, 1983) I-R model and, therefore, may be seen as inapplicable to crossroads jokes, where a coherent schema cannot be construed on the basis of the set-up.

4.3. *Semantic Script Theory of Humour and General Theory of Verbal Humour*

Raskin, the proponent of the Semantic Script¹⁰ Theory of Humour (SSTH), and Attardo, the co-author of its offshoot, the General Theory of Verbal Humour (GTVH) are in dispute over whether or not their model conforms to the incongruity-resolution framework. While Raskin unequivocally dissociates himself from the I-R model (Raskin 1985, 2001; Aymone 2007), albeit observing some similarities (Aymone 2007), Attardo is adamant that *script opposition* mirrors incongruity, while the *logical mechanism* corresponds to incongruity resolution (Attardo 1997, Attardo et al. 2002, Hempelmann and Attardo 2011). Also, Attardo (1997) puts forward a three-stage mechanism, denominating it the SIR model, which places emphasis on the set-up stage, next to the incongruity and its resolution. This seems to be only the matter of a terminological change, for Suls's (1972) model does account for the import of the set-up as well. A belief is strongly espoused here that the I-R framework and Raskin and Attardo's theory conceptualise jokes differently. Under the GTVH, several script oppositions can be found for each joke, none of which needs to reflect the focal incongruity between the set-up and the punchline (see Dyrel 2009a for a detailed discussion). Essentially, neither the SSTH nor the GTVH expounds in depth on the joke on-line interpretation process, which is the thrust of the I-R approach, but they do include a few postulates on on-line interpretation.

Raskin (1985) introduces the *semantic script-switch trigger*, a textual element found in many (but not all) jokes, which promotes a switch from one script to another and whose role is to render the second script "more plausible and less non-actual, abnormal or impossible"

¹⁰ Over the years, the conceptualisation of the "script" has evolved considerably (see Dyrel 2009a and the references therein), but Raskin (1985) understands it simply as a chunk of semantic information evoked by a word.

(Raskin 1985, p. 115). An analysis of Raskin's (1985, p. 115-116) examples corroborates that the trigger can belong to either the set-up (ambiguity trigger) or the punchline (ambiguity trigger or contradiction trigger), or even both (dichotomising trigger). A question arises as to whether in cases where the trigger does not belong to the punchline it should not be regarded as the element facilitating the switch, rather than actually causing the switch, which is the effect exerted by the punchline.

Secondly, Raskin makes generalisations which are at variance with some of the multifarious examples he provides.

Retroactively, due to the ambiguity, the second script changes the interpretation of the first part of the text of the joke (...) The usual effect of the trigger is exactly this: by introducing the second script it casts a shadow on the first script and the part of the text which introduced it, and imposes a different interpretation on it, which is different from the most obvious one. (Raskin 1985, p. 114)

The contradiction, while operating differently from ambiguity, creates exactly the same effect, namely, a second interpretation retroactively imposed on the whole text preceding the trigger as well as on the text following it, if any. (Raskin 1985, p. 116)

In these claims, Raskin (1985) transparently fails to acknowledge all the examples where the trigger occurs in the set-up, in which case it is not the element that retroactively enforces the second script but, constituting a basis for ambiguity, only allows for the occurrence of the two scripts, with one of them emerging only after the punchline has been processed. In the two quotations, Raskin (1985) inadvertently suggests that all jokes represent the garden-path structure, insofar as there are two text interpretations, only one of which is instantly perceivable, while the other emerges thanks to backtracking after the (vaguely defined) trigger, or rather the punchline, requires this. In a similar vein, in the first article on the GTVH (Attardo and Raskin 1991), a claim may be found suggesting that all jokes entail covert ambiguity/script opposition uncovered by the punchline.

The main claim of SSTH is that the text of a joke is always fully or in part compatible with two distinct scripts and that the two scripts are opposed to each other in a special way. In other words, the text of a joke is deliberately ambiguous, at least up to a point, if not to the very end. The punchline triggers the switch from the one script to the other by making the hearer backtrack and realize that a different interpretation was possible from the very beginning. (Attardo and Raskin 1991, p. 308)

This conceptualisation shows an improvement upon Raskin's (1985) original formulation, insofar as it avoids the ambivalent concept of the trigger, in favour of the punchline, which causes the shift of scripts. However, this account of joke processing, a perfect description of the garden-path mechanism, does not apply to the red-light and the crossroads mechanisms, where no ambiguity in the set-up is present. Furthermore, it should be highlighted that the garden-path mechanism (Attardo and Raskin 1991) is listed as only one out of the 27 logical mechanisms found in jokes (Attardo et al. 2002). This is how the authors indirectly concede that it is not the mechanism characteristic of all jokes, omitting to recognise the correspondence between this logical mechanism and their generalisation on the incremental interpretation of jokes. Later, revisiting the disruptive nature of punch lines, Attardo adds:

by forcing the hearer/reader to backtrack and reinterpret the text, or by forcing him/her to produce a new and incompatible (locally opposite) interpretation of the text, the

punch line cannot be integrated in the narrative it disrupts (which is the one that has set up the first script) (Attardo 2001, p. 83).

This extension indicates that Attardo (2001) is aware of a different type of text processing indicative of the red-light mechanism, but he still pays no heed to the crossroads joke, in which the construction of the first sense is not completed, because there is an element within the set-up which escapes understanding.

Finally, as an anonymous reviewer pointed out to me, the SSTH would capture all jokes, as it allows for different types of script overlap (Raskin 1985), which appear to be parallel to the mechanisms described here. In this vein, the red light mechanism might correspond to partial script overlap, while the other two categories seem to describe cases of complete script overlap. However, its shortcomings (Dyner 2009a) aside, this conceptualisation does not differentiate between the latter two categories, and, more importantly, it does not explain the incremental development of joke texts.

4.4. *Isotopy-Disjunction Model*

Attardo and co-researchers (Attardo 1994, Attardo et al. 1994) discuss the linear organisation of jokes according to the *isotopy-disjunction model* (IDM). The interpreter establishes one isotopy, i.e. sense, until he/she encounters an obstructing element in the punchline called the *disjunct*, which triggers incongruity (Attardo 1994, p. 97) and causes a passage to another antagonistic/opposed sense (Attardo 1994, p. 96), hence shifting the interpretation to a competitive isotopy. To reformulate, Attardo et al. (1994) postulate that the interpreter processes a joke linearly to form the first sense of the text (S1) until he/she reaches the disjunct, an anomalous (here, incongruous) element, which forces an unexpected and sudden passage to the second meaning of the text (S2). This definition may be deemed as applicable to all jokes, except for those embedded in the crossroads mechanism, in which the anomalous (incongruous) element does not promote a passage to another sense and in which the first sense cannot be construed until the punchline appears.

In addition, a distinction is drawn between referential and verbal jokes (Attardo 1994, Attardo et al. 1994). The latter, in contrast to the former, centre on a *connector* materialised by an ambiguous textual segment bearing two distinct interpretations. If present, the connector joins the two isotopies and provides a playful justification for a redirection of interpretation caused by the disjunct, which triggers the process of backtracking and reinterpretation or disambiguation. The first available sense is regarded as untenable, while the second sense as feasible, as a consequence of which the former is abandoned or maintained parallel to the latter. This definition distinguishes connector-disjunct jokes which coincide with garden-path jokes hinged on semantic ambiguity, with the pragmatic ambiguity being marginalised. Needless to say, the other two joke categories can hardly be captured by this description, but this should not be considered a shortcoming. What is one, however, is that IDM seems to neglect verbal jokes (which can also be called "linguistic jokes", cf. Dyner (2009a, 2009b)) which do not necessitate backtracking and cancelling the first interpretation, for instance jokes based on other forms of wordplay (e.g. alliteration or rhyming). Incidentally, the authors do acknowledge (Attardo et al. 2004) such jokes' existence. However, Attardo (1994) and Attardo et al. (1994) allow for a different interpretative path in the case of the *non-distinct configuration*, viz. in the case of jokes in which the ambiguous element appears at the end of the text and performs the role of both the connector and the disjunct. No actual backtracking will occur, but the interpretation made hitherto will be suspended, and an alternative meaning of the disjunct/connector will

determine the second interpretation of the text. This type of joke represents the red-light category, yet it constitutes only one of the whole gamut of its materialisations.

In conclusion, the isotopy-disjunction model prioritises some joke categories (garden-path mechanism involving semantic ambiguity, or red-light jokes with lexical ambiguity in the punchline) but underestimates the importance of others, not focusing on their peculiar workings. On balance, the framework does obtain for what is here called the red-light joke, as well as the garden-path joke, whilst not discussing the crossroads one at all.

4.5. The Frame-Structuring Model

Coulson's *space/frame-structuring* model (Coulson 2001, Coulson and Kutas 1998, Coulson et al. 2006) is premised on dynamic incremental meaning construction, which relies on understanding what space is being built and what background frames are relevant. Coulson (2001) posits that frame-shifting reflects the process of a semantic and pragmatic reanalysis due to which existing elements in the contextual representation are reorganised into a new frame. Capitalising on this mechanism, jokes are "constructed to suggest one frame while evoking elements consistent with another" (Coulson et al. 2006, p. 232).

Coulson (2001) and Coulson et al. (2006) use Attardo's (1994) and Attardo et al.'s (1994) terms "disjunctor", the element which prompts the frame-shift, and "connector", the linguistic bridge between the two frames. First, the interpreter extracts a frame based on the combination of the text and knowledge retrieved from long-term memory, before the disjunctor turns out to be inconsistent with the message-level expectation, and sometimes also lexical-level expectations, and cannot be accommodated by the frame active in the working memory. Upon encountering the disjunctor, which does not belong in the evoked frame, the interpreter is forced to backtrack and reinterpret the preceding text according to a different frame. The second frame is enforced and the earlier elements of the message representation are mapped onto it, causing the creation of an entirely new scenario and the abandonment of the first one. In a joke where a connector is present, "the choice of a new frame may change how we interpret the meanings of previously encountered words" (Coulson 2001, p. 69).

On the strength of this succinct overview, it is evident that Coulson's framework is a development on the isotopy-disjunction model subscribing to cognitive linguistics, which is why it does not account for the crossroads mechanism, where the hearer's formation of a frame may be obstructed and postponed until the requisite information is provided in the final chunk of the text. Since the inferential process is predicated on backtracking and abandoning the first frame, the model would neatly capture the garden-path mechanism. As evidenced by the examples of one-liners which reappear in Coulson's publications (Coulson 2001, Coulson et al. 2006), short jocular forms deploying both the garden-path mechanism (using lexical or pragmatic ambiguity) and the red-light mechanism are indeed subsumed under this model. In this view, a joke ends with a surprising element (usually a word or a phrase) not belonging in the first frame, which thus has to be rejected in favour of another one. Although Coulson does not expound on the complexity of the frames built in longer jokes and the cognitive difficulties one may encounter when modifying/changing the first frame after the disjunctor has appeared (cf. the process of incongruity resolution), her general model could potentially be enriched with additional provisos to cover such problems. Nonetheless, even then, frame-shifting will not hold for the crossroads joke.

4.6. Wenzel's Frame-Change Model

Less widely known frame-change model of linear organisation of jokes (as well as stories) is proposed by Wenzel (1989). He divides the joke text into the exposition and the punch line and attributes the humorous effect of the punchline to the shift in frames (understood as

schemas). Wenzel (1989) champions two structural patterns of jokes, drawing a distinction between the breach of a coherent frame by a textual element, and the establishment of a frame, which is imposed onto an overtly incoherent set of elements.

In the first case, the humorous effect is engendered when a coherent frame of reference formed in the joke's exposition is suddenly broken, on the grounds of an incoherent textual chunk, the punch line. In other words, the punchline shatters the frame built in the set-up. This largely coincides with what is here viewed as the red-light mechanism, on the understanding that the first frame does not have to be destroyed completely. In red-light jokes, the punchline does not need to be in stark contrast with the preceding part of the text but may only reveal surprising and incongruous information, which is what Wenzel's examples appear to suggest. Wenzel's conceptualisation can also encapsulate the garden-path joke, since it is indeed rooted in the punchline's sudden subversion of the frame built hitherto, even if the model does not explain its workings in detail, not accounting for the covert ambiguity.

The alternative process is the establishment of a reference frame on the basis of incoherent/incongruous set of events/entities, which eventually turn out to be coherent. This happens when the punchline provides an indispensable clue for resolving the incongruity arising within the first frame of reference, thereby establishing coherence/congruity within it. Given that the problematic (incongruous) element comes into play prior to the punchline, which resolves it, this mechanism is reminiscent of the crossroads joke proposed here.

In conclusion, albeit not distinguishing between the garden-path and red-light mechanisms, Wenzel's (1989) proposal does hold for both the categories. Additionally, his model has an advantage over the other approaches in that it captures the crossroads joke, in which the focal incongruity appears prior to the punchline.

4.7. Graded Salience and Marked Informativeness Requirement

In her work on jokes, Giora (1991, 2003) assumes that they commonly involve *double entendre* (i.e. punning), relying on two incompatible interpretations. Giora (1991, 2003) addresses the problem of the mechanism underlying the ambiguity-dependent jokes in the light of the *graded salience hypothesis*, the *Marked Informativeness Requirement* and the *suppression hypothesis*. Her approach is premised on the assumption that while non-jokes progress gradually, jokes entail an abrupt increase in informativeness. She also develops a twofold condition for a well-formed joke, viz.:

1. the fulfilment of the Relevance Requirement of the last interpretation
2. the fulfilment of the Marked Informativeness Requirement and the linear shift, i.e. interpreter's cancellation of the unmarked (salient) interpretation in favour of a marked one. (Giora 1991, p. 470)

Giora (2003) also adds that jokes reside in *salience imbalance*. They are thus initially interpreted in accordance with the most salient meaning until the punchline (in Giora's examples of one-liners, often reduced to one lexical item) proves to be incompatible or, in other words, incongruous with it. Hence, the punchline forces the interpreter to revisit the preceding part of the joke and suppress the salient meaning in favour of a less salient one, which appears to be the contextually (in terms of the punchline) compatible one. According to the suppression hypothesis, the salient but incongruous meaning is retained only as long as it is conducive to the appropriate interpretation but it discarded if it interferes with it.

On the whole, Giora's (1991, 2003) view is that each joke operates on a covert pun in the set-up, with only one salient meaning being activated initially. The overinformative punchline causes this salient meaning of the ambiguous chunk to be rejected, paving the way for another interpretation. This formula coincides with a description of the garden-path

mechanism exploiting lexical ambiguity, which is not intrinsic to all jokes. Consequently, Giora's model for joke interpretation is most plausible as long as its scope is explicitly narrowed down to garden-path jokes centring on lexical ambiguity of the set-up, whilst it does not appear to be pertinent to any other joke type distinguished here.

4.8. Catastrophe Theory

Propounding the mathematic *cusp* or *catastrophe theory* model of jokes and humour in general, Paulos (1980, p. 85) argues that each joke is couched in structured ambiguity with "the punch line precipitating the catastrophe of switching interpretations". As the humorous story unfolds, its elements suit both meanings, while the interpreter is aware of only one of them and follows one path of interpretation until encountering an *abrupt interpretation switch*, which "adds sufficient information to make it suddenly clear that the second (usually hidden) interpretation is the intended one" (Paulos 1980, p. 85). Irrespective of the counterexamples Paulos (1980) himself provides, which are not in line with his definition, he perceives all jokes as conforming to what is here seen as the garden-path category, failing to account for all other jokes, those reliant on the red-light and crossroads mechanisms, which do not exhibit covert ambiguity in the set-up.

4.9. Forced Reinterpretation

Ritchie's model dubbed *sudden disambiguation* (SD) (1999) as well as *forced reinterpretation* (FR) (2002, 2004, 2006) overtly focuses only on jokes which exploit two interpretations within the set-up, with only one of them being initially available to the audience. As they interpret the set-up, they see only the "obvious" interpretation, which later conflicts with the meaning of the punchline. The punchline then reveals the hearer's misinterpretation of the set-up, as it "is compatible with, and even evokes, the other, hitherto hidden, meaning" (Ritchie 2004, p. 56). Consequently, the meaning of the punchline is integrated with the hidden meaning, thereby forming a consistent interpretation. This inferential process is typical of what is here regarded as the garden-path mechanism, whilst no claims are made about other joke types. This model, however, leaves an unexplained lacuna: the notion of obviousness and the nature of ambiguity inherent to this joke category (for elaboration on the two characteristics, see Dyrel 2009a).

5. Conclusions

In this paper, three categories of jokes were advanced in reference to their incremental development and the interpreter's inferential processes. In all the three types, the incongruous punchline (or the switch, in the case of a shorter joke) ultimately invites the resolution. The incongruity-resolution model, understood broadly, will accommodate all the three joke types put forward here, albeit not accounting for their distinctive characteristics (incomprehensibility of some element within the set-up, which might be understood as the central incongruity; or covert ambiguity of the lead-up). It should be stressed that, apart from second-order incongruities, the most pivotal incongruity may sometimes (in the case of crossroads jokes) transpire already at the stage of the set-up, with the punchline frequently also introducing another focal incongruity and promoting a resolution thereto.

In the garden-path type of joke, the incongruous punchline evokes the concealed sense of the preceding text, bringing to light its initially covert ambiguity, and cancels the first effortlessly made (default/salient) interpretation in order to prioritise another, compatible/congruous with the import of the punchline. Secondly, the distinguishing feature

of the crossroads category is the emergence of the focal incongruity in the set-up, as a result of which the hearer cannot successfully complete the comprehension process of this part of the joke by arriving at its coherent meaning, until the punchline, frequently also bringing another incongruity, adds the requisite information. Thirdly, not manifesting covert ambiguity of the set-up or any focal incongruity in the set-up, the red-light joke draws merely on an incongruous punchline, which provides unexpected and incongruous piece of information, about which the interpreter will have made no inferences. In all the three cases, the punchline impels the interpreter to render any incongruity congruent according to an appropriate cognitive rule, which may pose an inferential challenge or may be practically effortless.

An overview of competitive models of joke interpretation patterns testified that they usually fail to capture all jokes, the authors' initial goals and claims notwithstanding. The findings are summarised in Table 1.

	Garden-path	Crossroads	Red light
Suls's I-R	Yes	No	Yes
Bisociation schema conflict	Yes	No	Yes
SSTH and GTVH	Yes	No	No
Isotopy-disjunction model	Yes	No	Yes
The frame-structuring model	Yes	No	Yes
Wenzel's frame structuring	Yes	Yes	Yes
Graded salience	Yes	No	No
Catastrophe model	Yes	No	No
Forced reinterpretation	Yes	Non-applicable	Non-applicable

Table 1: Alternative models in the light of the three types of jokes.

Whilst the garden-path and red-light mechanisms are usually included in the models, most frequently neglected is the crossroads mechanism. This is because the authors omit to observe that the central incongruity may appear before the punchline, preventing the hearer from construing a coherent meaning on the basis of the set-up. Also, a few authors describe the workings of jokes as if they all depended on covert ambiguity and the cancellation of the first meaning, and hence the garden-path mechanism. Admittedly, these problems can be attributed to insufficient data or circumstantial observations on which the authors base their theoretical proposals. Finally, it must be stressed that even if encompassing the three joke types propounded here, the frameworks do not necessarily bring out their peculiar features.

Differentiating between the three mechanisms (namely: the garden-path, red-light and crossroads mechanisms) may bring us a step further on our way towards the discovery of the linear workings of jokes.

References

- Attardo, Salvatore. 1994. *Linguistic Theories of Humor*. New York: Mouton.
- . 1997. "The semantic foundations of cognitive theories of humor." *Humor* 10, pp. 395–420.
- . 2001. *Humorous Texts: A Semantic and Pragmatic Analysis*. New York, NY: Mouton de Gruyter.
- . and Jean-Charles Chabanne. 1992. "Jokes as a text type". *Humor* 5, pp. 165–176.
- . Christian Hempelmann and Sara Di Maio. 2002. "Script oppositions and logical mechanisms: modeling incongruities and their resolutions." *Humor* 15, pp. 3–46.

- . Donalee Hughes Attardo, Paul Baltes and Marnie Jo Petray. 1994. "The linear organization of jokes: Analysis of two thousand texts." *Humor* 7, pp. 27–54.
- . and Victor Raskin. 1991. "Script theory revis(it)ed: Joke similarity and joke representation model." *Humor* 4, pp. 293–348.
- Aubouin, Elie. 1948. *Les Genres du Risible*. Marseille: C.N.R.S.
- Aymone, Alessandro. 2007. "Interview with Victor Raskin." In: Diana Popa and Salvatore Attardo (eds), *New Approaches to the Linguistics of Humour*, Galati: Editura Academica, pp. 217–225.
- Coulson, Seana. 2001. *Semantic Leaps. Frame-Shifting and Conceptual Blending in Meaning Construction*. Cambridge: Cambridge University Press.
- . and Marta Kutas. 1998. "Frame-shifting and sentential integration." *UCSD Cognitive Science Technical Report Postscript Version 98.03*. La Jolla, CA: UCSD.
- . 2006. Thomas Urbach and Marta Kutas. "Looking back: Joke comprehension and the space structuring model." *Humor* 19, pp. 229–250.
- Dascal, Marcelo. 1985. "Language use in jokes and dreams: sociopragmatics vs. psychopragmatics." *Language and Communication* 5, pp. 95–106.
- Dolitsky, Marlene. 1992. "Aspects of the unsaid in humour." *Humor* 5, pp. 33–43.
- Dyner, Marta. 2009a. *Humorous Garden-Paths: A Pragmatic-Cognitive Study*. Newcastle: Cambridge Scholars Publishing.
- . 2009b. "Beyond a joke: Types of conversational humour." *Language and Linguistics Compass. Semantics and Pragmatics* 3, pp. 1284–1299.
- . 2011a. "Joker in the pack: Towards determining the status of humorous framing in conversations." In: Marta Dyner (ed), *The Pragmatics of Humour across Discourse Domains*. Pragmatics and Beyond New Series. Amsterdam/Philadelphia: John Benjamins, pp. 217–241.
- . 2011b. "Blending the incongruity-resolution model and the conceptual integration theory: The case of blends in pictorial advertising." *International Review of Pragmatics* 3, pp. 59–83.
- Forabosco, Giovannantonio. 1992. "Cognitive aspects of the humour process: the concept of incongruity." *Humor* 5, pp. 9–26.
- . 2008. "Is the concept of incongruity still a useful construct for the advancement of humor research?" *Lodz Papers in Pragmatics* 4, pp. 45–62.
- Freud, Sigmund. 1905. *Der Witz und seine Beziehung zum Unbewussten*, Leipzig: Deuticke.
- Fry, William. 1963. *Sweet Madness: A Study of Humor*. Palo Alto: Pacific Books.
- Giora, Rachel. 1991. "On the cognitive aspects of the joke." *Journal of Pragmatics* 16, pp. 465–485.
- . 1997. "Understanding figurative and literal language: The graded salience hypothesis." *Cognitive Linguistics* 7, pp. 183–206.
- . 1999. "On the priority of salient meanings: Studies of literal and figurative language." *Journal of Pragmatics* 31, pp. 919–929.
- . 2003. *On Our Mind: Salience, Context, and Figurative Language*. New York: Oxford University Press.
- Grice, Paul Herbert. 1989a. "Logic and conversation." In Paul Herbert Grice, *Studies in the Way of Words*. Cambridge, Mass.: Harvard University Press, 22–40. Originally published as: Grice, Paul Herbert. 1975. "Logic and conversation." In: Peter Cole and Henry Morgan (eds.) *Syntax and Semantics. Vol. 3: Speech Acts*. New York: Academic Press, 41–58; and as Grice, Paul Herbert. 1975. "Logic and conversation." In: Donald Davison and G. Harman (eds.), *The Logic of Grammar*. Encino: Dickenson, pp. 64–75.
- . 1989b. "Further notes on logic and conversation." In: Paul Herbert Grice, *Studies in the Way of Words*. Cambridge, Mass.: Harvard University Press, 41–57. Originally

- published as: Grice, Paul Herbert. 1978. "Further notes on logic and conversation." In: Peter Cole (ed.), *Syntax and Semantics*. Vol. 9. New York: Academic Press, pp. 113–127.
- Hempelmann Christian and Salvatore Attardo. 2011. "Resolutions and their incongruities: Further thoughts on logical mechanisms." *Humour* 24, pp. 125–149.
- Hetzron, Robert. 1991. "On the structure of punchlines." *Humor* 4, pp. 61–108.
- Hockett, Charles. 1972. "Jokes." In: Estellie Smith (ed), *Studies in Linguistics in Honor of George L. Trager*. New York: Mouton, 153–178. Reprinted in Hockett, Charles. 1977. *The View from Language: Selected Essays*. Athens: University of Georgia Press, pp. 257–289.
- Jaszczolt, Katarzyna. 1999. *Discourse, Beliefs, and Intentions: Semantic Defaults and Propositional Attitude Ascription*. Oxford: Elsevier Science.
- . 2004. "Prolegomena to default semantics." *Research in Language 2. Special Issue on Developments in Pragmatics*, pp. 7–32.
- . 2005. *Default Semantics: Foundations of a Compositional Theory of Acts of Communication*. Oxford: Oxford University Press.
- Koestler Arthur. 1964. *The Act of Creation*. London: Hutchinson.
- Levinson, Stephen. 1983. *Pragmatics*. Cambridge: Cambridge University Press.
- . 1995. "Three levels of meaning." In: Frank Palmer (ed), *Grammar and Meaning. Essays in Honour of Sir John Lyons*. Cambridge: Cambridge University Press, pp. 90–115.
- . 1998. "Minimization and conversational inference." In: Asa Kasher (ed), *Pragmatics* 4. London: Routledge, pp. 545–614.
- . 2000. *Presumptive Meanings: The Theory of Generalized Conversational Implicature*. Cambridge, Mass.: MIT Press.
- Martin, Rod. 2007. *The Psychology of Humor. An Integrative Approach*. Burlington, MA: Elsevier.
- McGhee, Paul. 1979. *Humor, Its Origin and Development*. San Francisco: Freeman.
- . Willibald Ruch and Franz-Josef Hehl. 1990. "A personality-based model of humor development during adulthood." *Humor* 3, pp. 119–146.
- Mulkay, Michel. 1988. *On Humour: Its Nature And Its Place In Society*. Cambridge: Polity Press.
- Navon, David. 1988 "The seemingly appropriate but virtually inappropriate. Notes on characteristics of jokes." *Poetics* 17(3), pp. 207–219.
- Nerhardt, Göran. 1976. "Incongruity and funniness: Towards a new descriptive model." In: Anthony Chapman and Hugh Foot (eds), *Humour and Laughter: Theory, Research and Applications*. London: Transaction Publishers, pp. 55–62.
- Norrick, Neal. 1986. "A frame-theoretical analysis of verbal humor: Bisociation as schema conflict." *Semiotica* 60: 225–45.
- . 1987. "From wit to comedy: Bisociation and intertextuality." *Semiotica* 61, pp. 113–125.
- . 2001. "On the conversational performance of narrative jokes: toward an account of timing." *Humor* 14, pp. 255–274.
- Oring, Elliott. 1989. "Between jokes and tales: on the nature of punch lines." *Humor* 2(4), pp. 349–364.
- . 2003. *Engaging Humor*. Urbana. IL: University of Illinois Press.
- Paulos, John. 1980. *Mathematics and Humour*. Chicago: Chicago University Press.
- Raskin, Victor. 1985. *Semantic Mechanisms of Humor*. Dordrecht: D. Reidel Publishing Company.
- . 2011. "On Oring on GTVH." *Humor* 24, pp. 223–231.
- Ritchie, Graeme. 1999. "Developing the incongruity-resolution theory." In *Proceedings of AISB Symposium on Creative Language: Stories and Humour*. Edinburgh, April 1999, 78–85.
- <http://www.csd.abdn.ac.uk/~gritchie/papers/aisb99.pdf> (accessed May 10, 2007).

- . 2002. "The structure of forced reinterpretation jokes." In: *Proceedings of April Fools' Day Workshop on Computational Humour*, Oliviero Stock, Carlo Strapparava and Anton Nijholt (eds). University of Twente, Enschede, Netherlands, April 2002, pp. 47–56.
- . 2004. *The Linguistic Analysis of Jokes*. London: Routledge.
- . 2006. "Reinterpretation and viewpoints." *Humor* 19, pp. 251–270.
- Rothbart, Mary. 1976. "Incongruity, problem-solving and laughter." In: Anthony Chapman and Hugh Foot (eds), *Humour and Laughter: Theory, Research and Applications*. London: Wiley, pp. 37–54.
- . and Diana Pien. 1977. "Elephants and marshmallows: a theoretical synthesis of incongruity-resolution and arousal theories." In: Anthony Chapman and Hugh Foot (eds), *It's a Funny Thing, Humor*. New York: Pergamon, pp. 37–40.
- Sacks, Harvey. 1974. "An analysis of the course of a joke's telling in conversation." In: Richard Bauman and Joel Sherzer (eds.) *Explorations in the Ethnography of Speaking*. Cambridge: Cambridge University Press, pp. 337–353.
- . 1978. "Some Technical Considerations of a Dirty Joke." In: Jim Schenkein (ed.) *Studies in the Organization of Conversational Interaction*. New York: Academic Press, pp. 249–269.
- Samson, Andrea and Christian Hempelmann. 2011. "Humor with backgrounded incongruity: Does more required suspension of disbelief affect humor perception?" *Humor* 24, pp. 167–186.
- Sherzer, Joel. 1985. "Puns and jokes." In: Teun van Dijk (ed), *Handbook of Discourse Analysis*, Vol. 3. London: Academic, pp. 213–221.
- Shultz, Thomas. 1972. "The role of incongruity and resolution in children's appreciation of cartoon humor." *Journal of Experimental Child Psychology* 13, pp. 456–477.
- . 1974. "Development of the appreciation of riddles." *Child Development* 45, pp. 100–105.
- . 1976. "A cognitive-development analysis of humour." In: Anthony Chapman and Hugh Foot (eds.), *Humour and Laughter: Theory, Research and Applications*. London: Wiley, pp. 11–36.
- Suls, Jerry. 1972. "A two-stage model for the appreciation of jokes and cartoons: an information processing analysis." In: J. Goldstein and Paul McGhee (eds.), *The Psychology of Humor*. New York: Academic Press, pp. 81–100.
- . 1983. "Cognitive processes in humor appreciation." In: Paul McGhee and Jeffrey Goldstein (eds.), *Handbook of Humor Research, Vol.1*. New York: Springer, pp. 39–57.
- Tsakona, Villy. 2003. "Jab lines in narrative jokes." *Humor* 16, pp. 315–329.
- Wenzel, Peter. 1989. *Von der Struktur des Witzes zum Witz ser Struktur: Studies zur Technik der Pointierung*. Heidelberg: Winter.
- Yamaguchi, Haruhiko. 1988. "How to pull strings with words: Deceptive violations in the garden-path joke." *Journal of Pragmatics* 12, pp. 323–337.
- Ziv, Avner. 1984. *Personality and Sense of Humor*. New York: Springer.