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Title

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Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 10(0)

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Publication Date

1988

Peer reviewed

The usefulness of the script concept for characterizing dream reports

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A dream is usually defined as a mental experience that is (1) multimodal sensory imagination, largely visual; (2) dramatic in form, and (3) experienced as reality rather than imagination, i.e., hallucinatory. The dream itself is a subjective experience so that what is recalled and usually referred to as a dream is a dream report. The highest recall of complete, full-length dreams follows awakenings from REM (rapid eye movement) sleep, but dreams, as defined above, also occur during periods of non-REM sleep, sleep onset, and even periods of relaxed wakefulness for some subjects, leaving Foulkes (1985, p. 76) to conclude that "dreaming is a phenomenon which occurs in the presence of certain *mental* conditions: the relative absence of sensory stimulation and of the processing of such stimulation, the relinquishment of an Active-I, and persistent and relatively diffuse mnemonic activation."

Dreaming is thus a well-defined and distinct form of human thinking, yet a mode of thought that has been largely ignored by cognitive science. Fortunately, there are a few exceptions, notably Moser, Pfeifer, Schneider & von Zeppelin's (1983) computer simulation of a couple of dreams; and Mueller & Dyer's (1985) computational model of human daydreaming. Baylor & Deslauriers (1986-87; 1987-88), in their studies of morning recalls of night dreams, laid out a programmatic procedure for facilitating dream understanding by helping users recover aspects of their own dream formation process. They hypothesized that the planning component of dream generation can best be characterized as a script: a stereotyped sequence of actions in a more or less well-known situation (Schank & Abelson, 1977; revised by Schank, 1982). Scripts also contain information about the roles and goals of characters, about constraints on behavior, and about anticipated outcomes. In dreams, scripts appear as old patterns of behavior that instantiate current concerns in the dreamer's life and prescribe actions. In actual fact, of course, dreams deviate in major ways from scripts. Thus, it was hypothesized that deviations from script and the constraints they violate permit the dreamer to accomplish personal goals not prescribed by the script, which are often the major moments of meaning in dream understanding.

It is, of course, difficult to validate the notion that scripts are the best way of characterizing the planning component of dream construction. However, as a first step it would appear useful to know if there is agreement between the dreamer and independent judges as to what script, if any, may be underlying a dream. To this end an experiment was carried out to assess the degree of interjudge agreement. This is followed by the detailed analysis of one dream report where there was good agreement.

DESCRIPTION OF THE EXPERIMENT

Deslauriers for his doctoral research collected the laboratory dreams of seven volunteer male university students who spent two consecutive nights in the sleep

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laboratory at Carleton University, Ottawa (Note 1). They had been briefed beforehand about the purpose of the experiment and were given instructions about scripts and how to recognize them, including three practice dreams followed by feedback and discussion with E.

To recognize the stages of sleep, three main electrophysiological signals were used: EEG, EOG, and EMG (Arkin, Antrobus & Ellman, 1978). Before retiring, electrodes were attached to the S's scalp (EEG), eyes (EOG) and chin (EMG). The signals were then amplified, sent to a digital converter and transferred to a video monitor. Following 8-12 minutes of each period of REM sleep, E awakened S and asked him, first, to report his experience prior to the awakening and to indicate the order in which the events occurred; second, to describe his feelings during the experience; third, to identify what well-known situation or script the dream reminded him of, if any, as well as to indicate the information in the dream he used to identify such a script; fourth, to describe what seemed unusual or bizarre in the dream; and, finally, to report any events from his daily life that the dream may have reminded him of. S then returned to sleep.

Transcripts of the verbatim dream reports were given to two independent judges (Note 2). They were required to perform the same task as the Ss, namely, to identify a script, if any, and to specify the criteria they used for identifying it. The judges were not, of course, informed of the Ss' script identifications.

RESULTS

For the seven Ss reported here, 48 REM dreams were reported, five of which were eliminated (two because at least two judges agreed that there was no script; and the other three because at least one judge identified more than one script) leaving 43 REM dreams. The dreamer's script identifications as well as the two judges' were then compared by pairs to evaluate interjudge agreement, representing 129 comparisons for the 43 dream reports. The comparisons were categorized on the following 5-point scale:

- 0 - Total disagreement: two totally different and unrelated scripts
- 1 - Loose thematic agreement: two different but only loosely related scripts (e.g., watching an overfed frog get smashed and trapping an animal)
- 2 - Thematic agreement: two different but related scripts (e.g., discussion in a restaurant and sitting in a restaurant)
- 3 - Semantic agreement: Essentially the same script but expressed in different words (e.g., making conversation and discussion with a friend)
- 4 - Complete agreement: the same script expressed in the same or nearly the same words.

The results appear in Table 1. Out of 43 dream reports, there was complete agreement by all three judges (counting the dreamer as a judge) on seven dreams (16.3%) and complete agreement by two of the three judges on 12 additional dreams (adding up to 44.2%). The dream scripts that all three judges agreed on are perhaps worth listing: a

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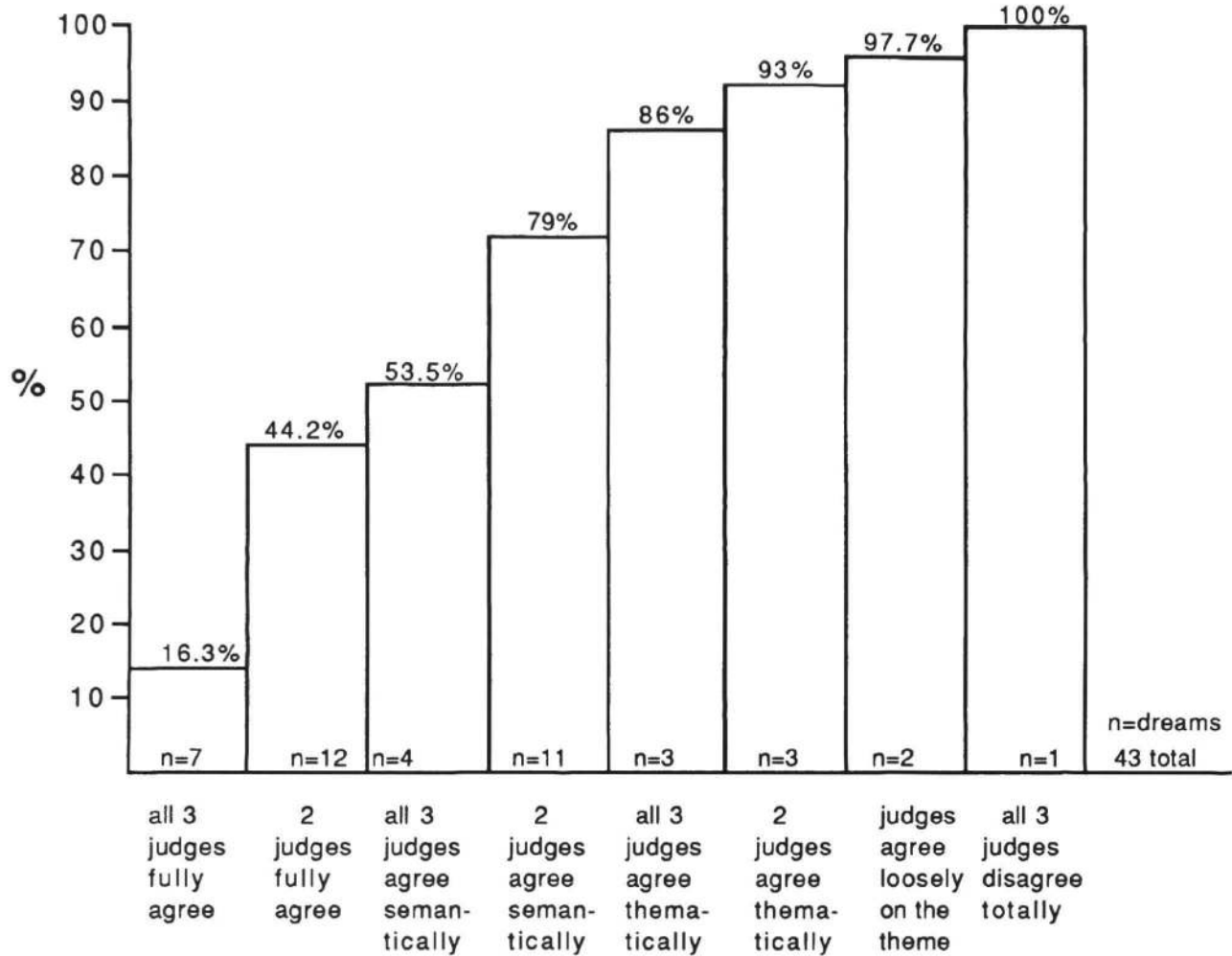


Table 1: Cumulative percentage of dreams by each category of agreement

basketball game, a football game, jogging in the park, fighting, being in a car, shopping with friends, argument with a roommate.

Relaxing the criterion to include the scripts that were rated semantically similar, there were four dreams where all three judges agreed on essentially the same script and another 11 where two of the three judges so agreed. All together this accounts for 34 of the 43 dreams, or 79.0%.

DISCUSSION

To us, 79% appears to be a surprisingly high number, indicating that judges can agree on a script underlying 7 or 8 REM dream reports out of 10. But just what does this interjudge agreement reflect? Would Ss be able to generate and agree on a core set of actions for each dream script, as in the Bower, Black & Turner (1979) experiment? Perhaps this is how they made their script identifications in the first place. Of course, when comparing the richness of the dream narrative with the scripts as identified, the

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script virtually never explains all the events in a given dream report. Dreams are almost never limited to simply reproducing typical situations. Thus, it would seem then that the dream scripts, as identified, provide a framework or skeletal structure for generating the major dream scenes, but for the flesh of the dream narrative, we need to look more closely at one dream report in detail.

The following dream report, the second REM awakening of the night, was produced by a male S in his late twenties who, in addition to being a student, also worked as an airport security guard.

It started when I was talking to somebody, I guess a fellow worker. I was working some kind of patrol or Mountie or Mountain ranger type of guard. We were carrying these modified shotguns. I think it was a big power rifle with a full stock maybe. I was carrying the rifle with the stock open resting on my belt. It was out in the country, in the hills, it seemed to be a mountainous area. It was summertime; it was warm out.

I left him and I was walking across the highway on my way to Dunden. It was like six lanes of highway. The first two lanes came around the corner. I had to get across the highway quickly, the first two lanes anyhow. On the highway, on the two corners coming out, there was a truck that came around. There were quite a few people in it. There was a back seat and I remember three men in the back, one of them had a broken arm. As they went by, I continued walking.

I looked behind for traffic but there was no traffic, only this lady coming at me. I went to this building and this is when I met this lady, when I had just crossed the highway. She was carrying a rifle. She was bitching at me that I wasn't carrying mine properly. I said "there's nothing wrong with the way I'm carrying mine; there's no difference from yours." It seems to be the argument as to whether or not the barrel was above my head or anybody's head as we walked into the office. She kept on bitching. I ignored her.

We walked into the building where I worked, like a ranger station. There were three or four fellow employees. She kept staring at us. One employee was carrying a rifle. He figured he's get rid of her, so he took her rifle and stuck it in his mouth and was able to hold it just with his teeth by the end of the barrel as to express "it doesn't matter how you carry a damned rifle" or something. He was trying to shock her and to tell her to mind her own business. She didn't find it funny. I was standing to the right of her and I was surprised there were no comments on her part about what he had done. Somehow she handed me a pistol, she pointed it at me. I guess we kind of give her shit for that. Then I woke up.

When, after reporting the dream, E asked S if the dream reminded him of any events from his daily life, he said that he was "upset" about a teaching assistant, a woman he strongly disliked whom he had been talking about before going to sleep. He said "she is prejudiced towards men ... if somebody took a look at the marks she gave in the class, he would probably find out that men have lower than women." Apparently, in a recent meeting with the teaching assistant S had failed to have his mark changed, and he was obviously angry at her: "I think she's a real bitch."

The dreamer identified this script as what was for him "a day at work" where he, in fact, carried a shotgun. One judge called it "Patrol guards talking" and the other "On ranger

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patrol." This is thus a script where there was semantic agreement among the three judges.

The script does appear to instantiate one of the dreamer's current concerns. The script of "a day at work" is for the dreamer a well-known situation where his competence is well established. The goal of a ranger patrol script is to protect a territory from intruders, and the dreamer, by the choice of this script, is attempting in a metaphoric problem space (Baylor & Deslauriers, 1986) to solve the problem of how to pass an academic course where he has to deal with a hostile teaching assistant. For example, the lady, who in the dream has the role of both intruder and critical superior, reminds him of the teaching assistant; this is the most obvious metaphoric referent. Also, in light of S's statement about how he feels the teaching assistant "is prejudiced towards men," crossing the highway without getting run down appears to convey metaphorically how the dreamer is trying to get through the course without ending up as a casualty like one of the men in the truck.

The script also provides the planning mechanism for generating a sequence of scenes, comparable to Mueller & Dyer's (1985) scenario generator. Specifically, the scenes prescribed by the script are (1) getting ready for patrol duty (corresponding to the first paragraph of the dream report); (2) walking the patrol (paragraphs two and three); and (3) going back to the station after patrol duty (paragraph four). This is the skeletal structure of the dream.

Within each scene, of course, there are many actions: some of them fall within the confines of a typical patrol script: for example, "talking to a fellow worker," "carrying a shotgun," leaving him and "walking across the highway," etc. Other activities, however, are not predicted by the script: for example, "a truck .. came around ... with three men in the back, one of them had a broken arm," "there was ... this lady coming at me...she was carrying a rifle," etc. While these actions are not prescribed by the script, they can be accommodated by (or assimilated to) it. This second class of actions was called tag actions, "causally related events not predicted by the script," in memory experiments by Reiser, Black & Abelson (1985, p. 92) and Graeser, Woll, Kowalski & Smith (1980).

Finally, the third class of actions are those that are so bizarre that they cannot reasonably be assimilated to the script: what Baylor & Deslauriers (1986-87; 1987-88) called the deviant actions. Indeed, they are judged deviant or bizarre exactly because of the difficulty of assimilating them to the current dream context. For example, "one employee ... took her rifle and stuck it in his mouth and was able to hold it just with his teeth by the end of the barrel." Taken together, these three classes of actions constitute the body of the dream narrative.

Underlying the dream narrative, of course, is a goal structure. For example, the top level goal appears to be to restore the dreamer's sense of self-esteem (ego consolidation, Dallett, 1973), which has been seriously compromised by S's confrontation with the female teaching assistant. The strategies (or control goals, in Mueller & Dyer's terminology) for re-establishing self-esteem are three: first, he tries to

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prove to the woman rationally that her criticism is unfounded since "there's nothing wrong with the way I'm carrying mine [rifle]; there's no difference from yours." This produces no results, so, second, he tries to ignore her, but she is persistent and follows him to the ranger station. Since neither strategy has been effective, there is now a radical deviation from script: a second man, perhaps acting as a surrogate or "dissented" aspect of the dreamer (Piotrowski, 1986) "figured he'd get rid of her, so he took her rifle and stuck it in his mouth...." "He was trying to shock her and to tell her to mind her own business." She is unimpressed. Suddenly, however, her rifle becomes smaller when she hands the dreamer a pistol, which she points at him. While this is an aggressive act, still the dreamer has succeeded in disarming her. The goal of self-esteem has been realized and the dreamer is now in a position where he is no longer threatened by the woman. In fact, the men now even take the offensive and "give her shit for [pointing the gun at him]." Given the experimental design, we do not have enough information about S to know the nature of the personal goal that may be underlying this deviant action; it is, of course, tempting to postulate some sort of sexual motif, which would presumably violate the constraints of a ranger patrol script.

In conclusion, it might be useful to compare and contrast our analysis of night dreams with various aspects of Mueller & Dyer's (1985) DAYDREAMER model, which must serve as a touchstone for any subsequent theory of dream production. First, night dreams usually begin with a more elaborate re-presentation of the situational description, often, as in the above example, in a metaphoric problem space. Second, in DAYDREAMER, emotions activate control goals which results in daydreaming. Similarly, we found anger, probably also accompanied by humiliation, to activate the personal goal of restoring self-esteem, which results in this night dream. Third, in DAYDREAMER there are both control goals (rationalization, revenge, failure/success reversals, and preparation), which guide the scenario generator, and conflicting personal goals (health, food, sex, friendship, self-esteem, love, achievement, etc.). In our analysis, we found that the personal goal of self-esteem appears to function as a top level "control goal" and guides the scenario generator, whereas what Mueller & Dyer (1985) called control goals appear to function as strategies in the service of the personal goal of restoring self-esteem. Fourth, in DAYDREAMER "the basic mechanism for scenario generation is planning ... i.e., generating a sequence of actions necessary to achieve a goal" (p. 124). Similarly, in our analysis, scripts function as the skeletal structure of the planning mechanism. Night dreams do, of course, differ from daydreams in their hallucinatory quality, in their relative absence of sensory stimulation and its processing, and in the relinquishment of an Active-I, so an eventual model of night dreaming should be discriminated from a model of daydreaming.

ACKNOWLEDGMENTS

Note 1. We are much indebted to Drs. Robert Hoffmann and Alan Moffitt for their instruction, support and permission to use their sleep laboratory, without which this experiment would probably not have been carried out.

Note 2. Many thanks to Mr. André Renaud and Dr. Howard Schachter who graciously served as judges in the painstaking analyses of the dream transcripts.

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