The Cognitive Consequences of Secrecy

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Four research paradigms explored links from secrecy to the suppression and intrusive recurrence of secret thoughts. In Study 1, keeping a word secret enhanced cognitive accessibility of the word on a Stroop color-naming task. Study 2 revealed that secret memory topics were recalled earlier than topics about which a lie or the truth was told. Study 3 showed that when participants were keeping secrets, their ratings of suppression and intrusive thinking of the secret became positively correlated. Study 4 participants rated 50 everyday topics for intrusiveness, suppression, and secrecy. Across topics, positive mean within-subject correlations were found among these variables.

People tend to identify their minds with the "place" where they conduct their secret thoughts. They even come to suppose that there is a special mystery about how we publish our thoughts instead of realizing that we employ a special artifice to keep them to ourselves. (Ryle, 1949, p. 27)

Keeping our thoughts to ourselves is not easy. Secrecy is an active process, as it requires much deliberate behavioral and mental work. Even then, it is not always the case that the more energy we put into keeping a secret the more successful we will be. At times, it seems that the more we try to hide something, the more likely we are to reveal that very thing. The cognitive maneuvers necessary for keeping a secret create an intentional suppression of the secret thought, the consequence of which is a paradoxical obsessive preoccupation with the secret that can, in some cases, make perseverance in concealing the secret a serious challenge. Our research was designed to explore these cognitive consequences of secrecy.

To begin with, it is useful to say something about the definition of secrecy. As we see it, secrecy is a form of intentional deception that is peculiar for two reasons. First, whereas deception involves inducing a belief in another person that one knows to be false, secrecy involves preventing the other from knowing something one believes to be true. In this sense, whereas deception is usually understood as an act of commission, secrecy is an act of deceptive omission. Coverups, distractions, or other commissions might be motivated by secrecy, but the secret itself would simply remain unsaid. The second distinction is that secrecy is something one can do alone in a room. Although deception is normally thought of as a social transaction of some kind in which one person acts on another by lying or withholding the truth, secrecy can be remarkably private despite these social

ramifications. One can have a secret even from a distant, imaginary, or long-dead audience. Although secrecy is ultimately a social act—or rather an *anti*social act, in the sense that it is targeted toward some audience to whom the truth is to be denied—it is also potentially quite personal.

People keep secrets from others for fear of the real or imagined repercussions the hidden information would bring with exposure, not realizing that the intrapsychic consequences of this silence can be devastating (Wegner, 1989). In families in which an important fact, such as abuse or parentage, has been kept secret over the years the family will often show dysfunctionality related directly to the secret (Imber-Black, 1993). Along this same vein, experimental evidence has revealed that people who do not disclose their secrets about traumatic experiences run the risk of psychological and health problems (Pennebaker, 1990; Pennebaker & O'Heeron, 1984; Pennebaker & Susman, 1988). In one study, for example, Holocaust survivors talked at length about the World War II experiences they had seldom disclosed (Pennebaker, Barger, & Tiebout, 1989). Their health 14 months after the interview was found to be positively correlated with the degree of disclosure during the interview. Related observations have been made in the investigations of psychotherapy that follow from Freud's idea of the talking cure. In these studies, keeping secrets appears to be associated with psychological distress, and revealing them is often curative (Frank & Frank, 1991; Stiles, 1987).

The obvious question presents itself: Why is keeping secrets such dangerous business? One simple answer is that secrecy is hard work. Secrecy is difficult because deception of any kind requires behavioral effort from its participants (DePaulo, 1992; Greene, O'Hair, Cody, & Yen, 1985). In the presence of a person from whom a secret must be kept, secret-bearers must work strategically to make sure that their verbal and nonverbal behaviors do not give away the hidden information. Secret keeping is a performance, and stringent behavioral proscriptions ensure that the performer is on edge whenever there is the potential for disclosure. Repair work is often required, too, because a slip of the tongue or body in reference to the secret may require inventive recovery tactics. Pennebaker and Chew (1985) found that the behavioral inhibition during deception is indicated by in-

creased skin conductance levels, suggesting that this activity does indeed require effort.

The behavioral work required to keep a secret only provides part of the explanation as to why secrecy is so much trouble. Even more of the work behind secrecy takes place in the realm of our thoughts. Just as any form of social self-presentation demands effortful control of the mind (Gilbert, Krull, & Pelham, 1988; Wegner & Erber, 1993), trying to keep a secret imposes needs for effortful mental control. These efforts involve a specific set of processes responsible for the successful keeping of secrets that at the same time prompt a kind of preoccupation with the secret that serves as the basis for the many unusual and potentially maladaptive consequences of secrecy.

The Preoccupation Model of Secrecy

We believe that secret keeping sets off a set of cognitive processes that results in obsessive preoccupation with the secret thought (see Figure 1). This development is composed of these steps: (a) secrecy causes thought suppression, (b) thought suppression causes intrusive thought, (c) intrusive thought causes renewed efforts at thought suppression, and (d) Steps b and c continue in cyclic repetition, as each occurs in response to the other.

In *The Imp of the Perverse,* Edgar Allan Poe provided a literary illustration that reflects this sequence. The protagonist in this story murdered a man and inherited his estate. This person managed to keep this secret for a long time, but at last it proved to be too much:

> . . . there arrived at length an epoch, from which the pleasurable feeling grew, by scarcely perceptible gradations, into a haunting and harassing thought. It harassed because it haunted. I could scarcely get rid of it for an instant. . . . At first, I made an effort to shake off this nightmare of the soul. I walked vigorously—faster—still faster at length I ran. I felt a maddening desire to shriek aloud. Every succeeding wave of thought overwhelmed me with new terror, for, alas! I well, too well understood that, to *think*, in my situation, was to be lost. (Poe, 1845/1978, pp. 1224–1226)

The protagonist found that the thought of the crime reappeared with increasing strength the more attempts he made to remove it. Finally, the character succumbed and "the long-imprisoned secret burst forth from [his] soul" (Poe, 1845/1978, p. 1226).

The preoccupation model suggests that the initial step in the creation of such turmoil occurs when secrecy causes thought suppression. The basic idea here is that the suppression of thoughts about the secret is the usual strategy people deploy in their efforts to keep the secret. Such suppression comes about because the secret keeper is typically reminded of the secret by the presence of the audience from whom the secret is to be kept. This reminding is useful, as it serves to prevent any inadvertent disclosure. At the same time, the reminding complicates the secret keeper's mental state. The now-salient secret cannot be mentioned, of course, even though it appears in mind as the most pressing potential topic of conversation. So, the secret keeper suppresses or postpones thoughts of the secret to think of something else to talk about in the presence of the audience.
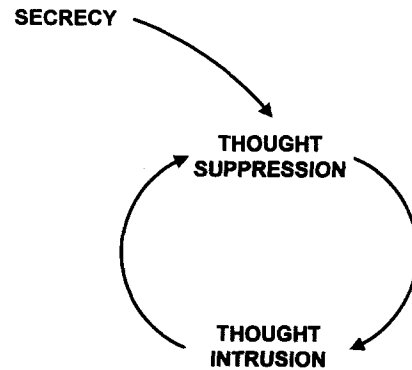

Figure 1. Preoccupation model of secrecy.

Thought suppression might even proceed as a preparatory strategy without any actual interaction, as the secret keeper struggles to find a state of mind free of thoughts that could promote any outward expression of the secret to potential or imagined audiences.

Deception by commission requires a different mental strategy, one in which a lie is invented and then rehearsed so that it can be substituted for the concealed truth whenever this is necessary. Deception that involves such invention may seem at first more difficult for the deceiver to carry off, as it requires creativity in the production of the deceit rather than the simple omission of information. But the omission of information necessitated by secrecy makes secret keeping particularly vexing for the very reason that no particular lie or story is available to serve as a replacement thought. Unlike lying, secrecy suggests no "distracters" to stand in for the omitted information, and so leaves the secret keeper with nothing to think about but the secret itself. Suppression of the secret thought thus becomes the default strategy of mental control (Wegner & Wenzlaff, in press).

The next step in the model is that thought suppression causes intrusive thoughts. This paradoxical effect is the general conclusion of a number of investigations of thought suppression, both experimental (Wegner, 1992) and correlational (Wegner & Zanakos, 1994). The initial study in this line of inquiry found that people who try to stop thinking of a white bear cannot seem to do so and even show a rebound of thoughts of the white bear when they stop suppressing (Wegner, Schneider, Carter, & White, 1987). Further research has found that thought suppression makes the thought hyperaccessible to consciousness—in the sense that the thought comes to mind, particularly under conditions of cognitive load, even more quickly than a thought on which one is trying to concentrate (Wegner & Erber, 1992; Wegner, Erber, & Zanakos, 1993). This effect seems to result from an unconscious, automatic search process instituted in suppression that ironically makes accessible the very thought that is being suppressed (Wegner, 1992, 1994). Although thought suppression provides an immediate solution to the secret keeper's problem of thinking about the secret too much, it has the unfortunate effect of making the secret cognitively accessible. Such accessibility refers to the predisposition to think, not the actual occurrence of conscious thought (Higgins & King, 1981). This cognitive accessibility makes the thought likely

to intrude into consciousness unbidden (Martin, Tesser, & McIntosh, 1993).

The third step in the model is that intrusive thought causes renewed efforts at thought suppression. The intrusive thoughts of the secret that result from suppression are, to be sure, something of a surprise. The secret thought will come to mind as an irrelevant intrusion when the person is thinking about other things that should not have prompted the secret at all. When the secret pops to mind in this way, it is natural for the person to fear that its appearance could result in an unintentional revelation of the secret. So, attempts to remove it from consciousness are again undertaken. Even if the secret thought intrudes when disclosure is not an immediate concern, the inappropriate, frequent emergence of the thought may make it seem alien and perhaps even disturbing (Horowitz, 1975; Rachman, 1981). In essence, then, whereas thought suppression may initially be motivated by the demands of keeping the secret, it later may be motivated by the person's concern about the suppression-induced intrusion of the secret thoughts into consciousness.

The final step in the model is the key to the continuing mental unrest experienced by the secret keeper—thought suppression and intrusive thoughts occur cyclically, each in response to the other. Secrecy sets the stage for the formation of a feedback system in which each attempt to suppress the secret produces intrusive thinking of that very secret, which in turn engenders increased efforts at thought suppression. This process can quickly turn into a self-sustaining cycle in which obsessive preoccupation with thoughts of the secret develops. Once this preoccupation cycle is set into motion, moreover, removing secrecy from the equation will not necessarily stop the obsessive preoccupation with the secret. After the person has identified the thought of a secret as intrusive and unwanted, suppression can maintain the intrusiveness (and the intrusiveness can maintain the suppression). Secrecy's cognitive consequences may persevere long after the secrecy itself is gone.

A set of studies examining secret relationships (Wegner, Lane, & Dimitri, 1994) provides one context in which to observe effects of secrecy predicted by the model. In response to a survey, for example, participants reported that the former loves and crushes that they still ruminated about were more likely to have been secret at the time they occurred than were those that were no longer the topic of rumination. Along the same lines, a second survey study revealed that participants who reported their past relationship was secret also reported that the relationship continued as the target of their obsessive preoccupation. It is of special interest that "obsessive preoccupation" in this survey was measured through participants' reports of both intrusive thinking about the relationship and suppression of thoughts of the relationship—which were found to be positively correlated in this study.

In a third study, Wegner et al. (1994) brought impromptu couples into the laboratory, and half of them were instructed to play "footsie" with their partners. Of the couples making foot contact, half were asked to keep this contact a secret. As compared to couples who did not touch or couples who touched openly, couples who kept secret contact reported greater attraction to each other after the game and a tendency toward preoccupation with each other as well. The specific appearance of a positive correlation between thought suppression and intrusive thinking about the rela-

tionship (the "obsessive preoccupation" isolated in the survey), however, was found here only in the secret contact condition. This pattern suggests that there is something unique about the social situation of secret keeping that helps cultivate the association between suppression and intrusive thought.

Obviously, the model we have proposed here is a complex one with a number of steps and a variety of alternatives. The present studies were designed to examine this model's plausibility by shedding light on various parts of the proposed mechanism in turn and through the lenses of several different experimental settings. The standard context in which secrecy occurs is a social one, and for this reason we have fashioned these studies, for the most part, to capture the effects of secrecy while it is ongoing. The first two studies focused on the links from secrecy to suppression and intrusive thought by examining whether secrecy increases the cognitive accessibility of secret thoughts. Study 1 used a Stroop (1935) interference paradigm to examine the accessibility of thoughts that participants were keeping secret from the experimenter, and Study 2 used an incidental memory paradigm to assess the continued accessibility of thoughts after participants had kept the thoughts secret from the experimenter. Study 3 explored the link between secrecy and the cyclic elements of obsessive preoccupation—thought suppression and thought intrusiveness—by assessing self-reports of these variables under conditions of secrecy, instructed suppression, and instructed thinking. And Study 4 investigated within-subject correlations among self-reports of secrecy, thought suppression, and thought intrusion for a large sample of participants' everyday thoughts.

Study 1: Accessibility of Secrets

This study examined whether secret keeping increases the cognitive accessibility (cf. Bargh, 1984; Higgins, 1989) of the secret. Wegner and Erber (1992, Experiment 2) found that participants who suppressed thoughts of a word while under cognitive load had longer reaction times (RTs) to name the color in which the word was printed than did participants under load who were trying to think about the word (see also Wegner et al., 1993, Experiment 2). This Stroop-type interference effect was taken as an indication of increased cognitive accessibility of suppressed thoughts (cf. Bargh & Tota, 1988). The present study replicated this procedure, with the exception that participants kept a target word secret rather than suppressing it. If keeping secrets involves suppressing thoughts of the secret, then participants keeping secrets should experience increased accessibility of the secret thoughts and words that are closely associated with the secret. Our prediction was that participants keeping a word secret under high load would show slower RTs to name the color of the word and secret-related words than participants under low load and than participants under high load who did not keep the target word secret.

Method

Overview and design. Participants were instructed that the experimenter either knew or did not know their target word (e.g., *mountain*), and those who thought the experimenter did not know the target word were asked to keep it secret from her during the experiment. Participants were given either a two-digit (low-cognitive-load condition) or a

nine-digit number (high-cognitive-load condition) to rehearse during the subsequent task. Participants then performed a two-color Stroop RT task on the computer. For each word of a series appearing on the monitor, participants pressed a key indicating the color in which the word was printed. The words included repetitions of the target word, target-related words, and target-unrelated words. The design was a 2 (secret instructions vs. nonsecret instructions) × 2 (low vs. high cognitive load) × 3 (target, target-related, or target-unrelated word type) with repeated measures on the last variable. Participants also completed a postexperimental questionnaire.

Participants. University of Virginia undergraduates (52 men and 43 women) participated for an introductory psychology course requirement. Seven of these participants were unable to recall the entire load number in the high-cognitive-load condition (indicating that this was indeed a difficult task), but these participants were retained in the analysis. However, data for 8 participants with unusually high mean RTs (over 680 ms) were discarded. After surveying the distribution of the data, we chose 680 ms as the cutoff because it is at this point that there is a clear gap in the distribution between normally distributed RT scores and a group of outliers. Data for 7 participants were also discarded due to high error rates on the Stroop task (over 7.5%). Two more participants had missing RT data due to computer problems, but their questionnaire responses were available. Participants were randomly assigned to one of four conditions and were run individually.

Procedure. Participants were told that the purpose of the study was to examine the effects of performing more than one task simultaneously. After signing a consent form, participants were given a folder with instructions and were told they would need to read and follow these instructions for their first task. In these instructions, 1 of 4 words (*house, car, mountain,* or *child*) was listed as the participant's target word. Participants in the nonsecret condition read that the experimenter knew what their target word was and that she would be asking them questions about it after the computer task. Participants in the secret condition read that the experimenter did not know their target word, that their job was to keep it a secret from her throughout the experiment, and that she would be asking them questions about it after the computer task to try to determine what it was.

The experimenter explained that participants would perform a color-detection task on the computer and also rehearse a number. Participants in the nonsecret condition were told that during the computer task the experimenter would be looking over their shoulder and watching, and that the experimenter would ask the participants questions about their target word afterwards. Participants in the secret condition were told that the experimenter would be looking over their shoulder during the computer task and trying to guess their target word from their reactions. They were instructed to keep the word secret from her at all times, and were reminded that after the task the experimenter would ask questions about their target word to try to guess what it was.

Participants then sat at a computer monitor where they read instructions. These explained that they were to respond quickly and accurately to a series of words, indicating whether each word was shown in red or blue by pressing one of two keys on the keyboard (cf. Wegner & Erber, 1992, Expt. 2). Participants first completed 12 practice trials. Participants were told that before the actual computer task they would have 25 s to commit a number to memory and that they would have to report this number to the experimenter exactly as it was given or their data would be disqualified from the study (cf. Gilbert & Osborne, 1989). The experimenter read either a two-digit number (53) or a nine-digit number (539264071) and repeated it as many times as the participant requested. After participants said the number correctly, the experimenter allowed them 25 s to rehearse before starting the computer task.

The experimenter then started the Stroop task and stood immediately behind the participant's left shoulder. When the participants finished,

the experimenter asked them to report the number they were given to memorize. Participants were then told that before the experimenter asked them questions about their target they should complete a questionnaire. Participants were debriefed and dismissed upon completion of their questionnaire.

Stimuli. The computer program used was the same as that used by Wegner and Erber (1992, Experiment 2). On a 14-inch IBM-compatible EGA color monitor, the words were shown in the standard 24 by 80-character screen font. The computer was calibrated to record RT in Microsoft Quickbasic 4.5 through a timing program by Creeger, Miller, and Paredes (1990). During the program, preceding the occurrence of each word, there was a 3-s pause followed by a black asterisk appearing on the white screen for 2 s. Then, the word appeared on the screen in either red or blue and remained there until participants pressed a key.

Apart from the 12 practice trials, participants performed 72 trials for the task. Eight of the 72 trials were used as buffers to get the participant comfortable with the task. All participants received the same set of 64 stimulus words in random order, and color was balanced so that half the time a particular word was red and the other half of the time the word was blue. Half the participants were presented the words in reverse order from the others. The four possible target words (*house, car, mountain,* and *child*) each appeared on the screen eight times (32 trials). Target-related words were selected from the top six associates of each target word in the norms collected by Palermo and Jenkins (1964). The target-related words were *home, door, brick, roof* (for *house*); *wheel, bus, truck, drive* (for *car*); *hill, peak, climb, high* (for *mountain*); and *mother, little, adult, young* (for *child*). Two presentations were made of each of the four target-related words for each of the four possible target words (32 trials). Target-unrelated words for each target were the words that were targets or target-related words for other participants (e.g., *child, house,* or *car* when the target is *mountain*).

Questionnaire. The questionnaire participants completed after the computer task served to check the manipulations and assess levels of some self-report variables. Participants made 7-point Likert-type ratings of their discomfort in the experimental situation ("I felt nervous having the experimenter stand over my shoulder during the computer task"), task understanding ("I understood all of the instructions in this study"), and task difficulty ("It was difficult to memorize the number and perform the computer task at the same time"). Also assessed was whether or not participants were trying to keep a secret ("I have been trying to keep a secret from the experimenter"), attempting to suppress thoughts of the secret ("I tried not to think about the target word during the computer task"), and engaging in self-distraction ("Whenever the target word came to mind, I tried to think of something else").

Results and Discussion

Secrecy manipulation check. To check participant adherence to the secrecy manipulation, participants' postexperimental responses to the item "I have been trying to keep a secret from the experimenter" were examined. As expected, there was a significant main effect for instruction (secret vs. nonsecret), $F(1, 76) = 302.17, p < .001$. Participants in the secret condition expressed far more effort to keep a secret ($M = 6.05$) than did participants in the nonsecret condition ($M = 1.66$).

Load manipulation check. Another experimental check revealed that instructing participants to memorize either a two-digit (low load) or nine-digit number (high load) was an effective manipulation of perceived task difficulty. Participants' responses to the item "It was difficult to memorize the number and perform the computer task at the same time" served as the basis for this load manipulation check. There was a main effect

for load, $F(1, 76) = 49.21$, $p < .01$, with low-load participants reporting less difficulty ($M = 1.39$) than high-load participants ($M = 3.41$).

Reaction times. The main dependent measure of thought accessibility was RT for correct responses on the Stroop task (see Figure 2). We performed a mixed analysis of variance (ANOVA) with secrecy instruction and cognitive load as between-subjects variables and word type as a within-subjects variable. Further confirming the effectiveness of the load manipulation, a significant main effect was found for load on RT, $F(1, 74) = 4.57$, $p < .04$. Participants in the low-load condition had faster RTs ($M = 468$ ms) than participants in the high-load condition ($M = 509$ ms).

The expected interaction of cognitive load, instruction, and word type was indeed significant, $F(2, 148) = 3.69$, $p < .03$. Simple simple main effects were computed to examine the significance of mean differences occurring for target, target-related, and target-unrelated word types. This analysis indicated that the predicted effects were significant for target words, but not for target-unrelated words, and only partially for target-related words. Specifically, there was a significant simple simple main effect of instruction under high load for target word, $F(1, 74) = 4.14$, $p < .05$. Participants under high load reacted more slowly to the target words when they were keeping a secret ($M = 562$ ms) than when they were not keeping a secret ($M = 483$ ms). This effect was not significant for target-unrelated words, $F(1, 74) = 1.44$, $p = .24$, or for target-related words, $F(1, 74) = .92$, $p = .34$. There was a significant simple simple main effect of load for target words in the secrecy condition, $F(1, 74) = 4.27$, $p < .05$. Participants keeping a secret showed slower RTs for target words under high load ($M = 562$ ms) than under low load ($M = 482$ ms). This effect was not significant for target-unrelated words, $F(1, 74) = 3.13$, $p = .09$, but was significant for target-related words, $F(1, 74) = 3.97$, $p < .05$. This pattern indicates that participants who kept a secret under high load showed hyperaccessibility of the secret target word. Such hyper-

Figure 2. Color-naming RTs in Study 1.

accessibility was only marginally evident for target-related words, and was not present for target-unrelated words.

A general test was also made of the main prediction—that the secret, high load, target word cell should contain the slowest RTs compared to all the other cells. This was tested by a contrast in which that cell (target word, high load, and secret instruction) was compared to all of the other 11 cells on mean RT. The mean RT in the cell of interest ($M = 562$ ms) was higher than in the other cells ($M_T = 482$ ms). Using the within-subjects MS error-term (2484.61) the contrast was significant, $F(1, 148) = 45.68$, $p < .01$ and substituting the MS between-subjects error-term (22273.84) still resulted in significance, $F(1, 74) = 5.10$, $p < .03$. This contrast upholds the central prediction that keeping a secret under a cognitive load results in enhanced accessibility of the secret thought.

Asking participants to keep a word secret had much the same effect on cognitive accessibility that has been observed when participants were asked not to think of a word (Wegner & Erber, 1992; Wegner et al., 1993). Perhaps, as we suggested earlier, secrecy has these cognitive effects because of the thought suppression it produces. It seems likely that when a person tries to keep a secret, on some level the idea of this secret must be pushed from consciousness. When load is put on the secret bearer, the operating process that puts the secret out of mind by searching for alternative thoughts is circumvented, thereby allowing the automatic process which searches for occurrences of the secret to make it especially accessible to consciousness.

Self-reported cognitions. Participants reported that secrecy made them attempt to suppress the secret thought. There was a significant main effect for secret versus nonsecret instruction on the postexperimental questionnaire item intended to measure thought suppression, "I tried not to think about the target word during the computer task," $F(1, 79) = 10.88$, $p < .01$. Participants keeping a secret indicated more thought suppression ($M = 3.90$) than did those participants not keeping a secret ($M = 2.61$). Analysis of responses to the questionnaire item measuring thought suppression through self-distraction, "Whenever the target word came to mind, I tried to think of something else," showed marginal significance, $F(1, 79) = 3.51$, $p < .06$. Secret-keeping participants tended to report more self-distraction ($M = 2.90$) than did participants not keeping a secret ($M = 2.27$). The items showed no significant interaction between instruction and cognitive load, indicating that load did not have an effect on the self-report of the strategies participants used to keep the secret.

Other questionnaire items. Participants also rated their agreement after the experiment with items intended to measure discomfort and task understanding. Assessments of these variables were obtained to examine their potential role in explaining the effects of secrecy. No significant effects were obtained for these items, suggesting that discomfort or misunderstanding of the task, at least as measured in this way, were not likely explanations of the observed effects.
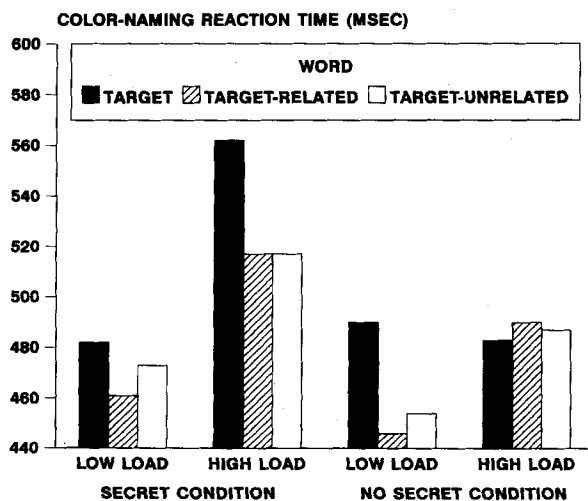
Study 2: Accessibility of Secret Memories

The first study examined the cognitive consequences of secrecy during secret keeping. The preoccupation model predicts

that the cognitive repercussions of secrecy should last beyond the episode of secret keeping. Some evidence for such effects comes from survey research by Wegner et al. (1994) in which students who completed surveys asking for their thoughts and feelings about past romances or crushes indicated more obsessive preoccupation currently about these relationships if they had been secret in the past. In the present study, we tested the effect of experimentally imposed secrecy on subsequent memory. We predicted that when participants responded to an experimenter's questions about a target word by keeping a secret (rather than telling the truth or a lie), even after 10 min, the accessibility of the secret words in memory would be heightened. This accessibility was expected to be manifest in early recall of the secret words during an incidental recall test. Our measure of the earliness of recall entailed categorizing each word the participant remembered into the first half or second half of total items recalled. Words that fell into the former category were reasoned to be more easily brought to mind than the words that were recalled later.

A second purpose of the study was to learn whether the predicted effect would be any more or less prominent for personal topics as opposed to nonpersonal ones. Although we did not venture predictions for this variable, we thought it was of interest to learn whether secrecy effects would be general across these different domains.

Method

Overview and design. While being videotaped, participants answered questions about 24 topic words (e.g., *date*) by responding, according to instructions, with either a true statement on the topic, a lying statement on the topic, or an irrelevant statement that allowed them to keep their true feelings on the topic secret. The questions for half the topics were personal, involving the participant's own attitudes or behavior, whereas those for the other half were nonpersonal. Following this question-and-answer period participants completed a 10-min filler task. Participants then wrote down as many of the 24 topic words from the first part of the study as they could recall. They were also asked to indicate whether they had told the truth, told a lie, or kept a secret about the recalled topic words.

Participants. University of Virginia undergraduates (55 women and 27 men) participated for an introductory psychology course requirement. Data for two were discarded due to failure to follow experimental instructions.

Procedure. Each participant was tested individually. Participants were told that they would participate in a two-part study of college students' opinions. The purpose of the first part ostensibly was to examine opinions on a variety of topics and also to determine how well people could tell lies, keep secrets, and tell the truth. Participants were then told they would be shown 24 flashcards one at a time on which were written a topic and a one-word instruction either to tell a truth, to tell a lie, or to keep a secret. The experimenter would hold up a card and ask a question pertaining to the topic. Participants were to respond to the question with one or two sentences in accord with the instruction. If the instruction said "truth," participants were supposed to say the true answer to the question in a sentence or two. For the "lie" instruction participants were to reply to the question with one or two sentences lying about the topic. If the instruction said "secret," participants were supposed to respond with one or two sentences that were irrelevant to the question asked and keep their true response a secret.

After receiving these instructions, participants were then seated in front of a videocamera and told that they would also need to write down a sentence or two on a sheet of paper after they orally responded to each question. If they had just made a truthful or a lying statement they were to write down that statement. However, in the case of a secretive statement, participants were instructed to write down their secret truthful answer to the question instead of the irrelevant statement they had said aloud. Participants were told these sentences would not be seen by the experimenter but that they would be reviewed at a later time. Participants were then told that they would be videotaped so that participants in another study could watch the videotape of them to try to detect whether they were being secretive, truthful, or lying. The experimenter led the participants through several examples before the actual questioning and videotaping began. Participants followed these instructions and either told the truth, told a lie, or kept a secret about each of the 24 topic words.

The experimenter then said that for the next part of the study participants would complete some other questionnaires. When participants finished this filler packet (about 10 min), the experimenter asked them to write down in 5 min as many of the 24 topic words from the first part of the study as they could remember. After this, participants were asked to review their answers and note whether they had told a truth, told a lie, or kept a secret about each one. When participants finished, they were debriefed and dismissed.

Stimuli. Each participant saw 24 flashcards on which a topic and a corresponding instruction were written. For every participant, 8 of the instructions were "truth," 8 were "lie," and 8 were "secret." The design included three between-subjects replications varying instructions so that one third of the participants told the truth about a particular block of eight words, another one third told a lie about this same block, and a final one third told a secret about these words. Participants in the first replication received "truth" instructions for the words *church, diet, hair, helping, Clinton, dentist, dorms, gerbil;* "lie" instructions for the words *career, cheat, GPA, income, attractive, backpack, Red Cross, Virginia;* and "secret" instructions for the topics *alcohol, date, intelligent, prize, basketball, Bodo's* (a local bakery), *smoking, Somalia.* Participants in the other replications received counterbalanced pairings of instructions and blocks of topic words. The words were presented in one of three random orders.

Of the questions asked about the eight words in each block, four were personal and four were nonpersonal. The personal topics were ones in which the related questions dealt directly with the participants' behavior (e.g., How often do you attend *church?* When is the last time you remember *helping* someone? Have you ever *cheated?* What was your *GPA* last semester? How much *income* do you make per year? Have you ever drunk too much *alcohol?* Have you ever been on an unsuccessful *date?* Have you ever won a *prize?*) or were more likely to be personally important to the participant (e.g., Do you follow a healthy *diet?* Is there something you do not like about your *hair?* What do you want to do as a *career* someday? Compared to others how *intelligent* are you?). The nonpersonal questions were fact oriented (e.g., What tools does a *dentist* use? What is a *backpack?* What does a *Red Cross* volunteer do? Where is *Virginia* located geographically? How is the UVA men's *basketball* team doing? What are some aftereffects of *smoking?* Why are U.S. troops in *Somalia?*) and opinion oriented (e.g., Do you think *Clinton* will make a good president? What are UVA *dorms* like? Does a *gerbil* make a good pet? Who is more *attractive,* Madonna or Janet Jackson? What do you like to order when you eat at *Bodo's?*).

Results and Discussion

Our main concern in this study was accessibility of items in memory. We reasoned that if secret topics are more accessible, these topics should appear earlier in the list of items recalled

than truthful and lying topics. To assess this, the items recalled were divided into first and second halves for each participant, and number of items recalled for each instruction was determined for each half. An ANOVA on number of items recalled was then done with instruction (secret, lie, or truth), personal versus nonpersonal topic, and first versus second half of the list as the independent variables.

This analysis revealed no overall effect of instruction on recall. However, there was the expected significant interaction between topic instruction and whether the topic was remembered in the first half versus the second half, $F(2, 158) = 7.42$, $p < .001$. Means for this measure are shown in Table 1. More secret topics ($M = 2.29$) were remembered in the first half than were truth topics ($M = 1.69$), $F(1, 79) = 9.93$, $p < .01$, or lie topics ($M = 1.80$), $F(1, 79) = 8.08$, $p < .01$. The number of truth and lie topics did not differ. As expected, this predominance of secrets was not found in the second half of items remembered. Secret topics ($M = 1.43$) were remembered less frequently in the second half than were truth topics ($M = 1.94$), $F(1, 79) = 7.16$, $p < .01$, or lie topics ($M = 1.94$), $F(1, 79) = 8.06$, $p < .01$. There was no significant difference between number of truths and lies remembered in the second half. Comparing recall between the first and second halves, we found that secret topics were recalled more in the first half than in the second half, $F(1, 79) = 23.10$, $p < .001$. Although not significant, the reverse pattern was found for truthful and lying topics, with more topics recalled in the second half compared to the first half.

There was a significant main effect for number of topics remembered in the first half ($M = 5.78$) versus second half ($M = 5.31$), $F(1, 79) = 71.48$, $p < .001$. This difference was due to the technique used in dividing up topics remembered into the first half or second half. When there was an odd number of topics remembered, we assigned the first half to include the extra topic. There was also a significant main effect for personal versus nonpersonal topic, $F(1, 79) = 8.66$, $p < .01$. Overall, nonpersonal topics ($M = 5.95$) were remembered more frequently than were personal topics ($M = 5.14$). Perhaps the nonpersonal topics chosen for this study were more vivid or unique than the personal topics. It is also possible that participants remembered personal topics more easily than nonpersonal topics, but they were reticent to report them. There were no other significant effects in this analysis. (Additional analyses showed that the three different orderings of the topics had no significant effects.)

After writing down all of the topics they recalled, participants indicated whether they thought they had told a truth, a lie, or a secret about each one. Participants were more likely to misre-

Table 1

Number of Truth, Lie, and Secret Topics Recalled in the First Half Versus Second Half of Study 2

Topics recalled	Instruction condition		
	Tell truth about topic	Tell lie about topic	Keep topic secret
In first half	1.69	1.80	2.29
In second half	1.94	1.94	1.43

member the eight secret topics as having been from the other categories ($M = .49$) than they were to misremember truths ($M = .18$), $F(1, 79) = 10.09$, $p < .01$, or lies ($M = .19$), $F(1, 79) = 7.04$, $p < .01$. This difference may be due to participants having reported their truths and lies twice (orally and in writing) while reporting their secrets only in written form. It may be the case, though, that this finding points to some form of forgetting secrets, or perhaps to a difficulty people have in keeping track of a category of secret information (as opposed to lies or truths).

We also conducted analyses to ascertain whether the responses participants made to the topics themselves differed in memorability. We were concerned that secret topics might have been recalled earlier by virtue of the memorability of the written or oral statements participants made in keeping secrets as compared to lying or telling the truth. To check this, two coders blind to condition rated participants' videotaped responses for memorability on a 1 to 9 scale. Their effective reliability for this was marginally acceptable (.62). There was a significant main effect of instruction on this variable, $F(2, 154) = 260.05$, $p < .001$. Responding to a topic question with a lie resulted in a more memorable statement ($M = 4.10$) than responding with the truth ($M = 3.10$), $F(1, 77) = 372.45$, $p < .001$, or than responding with an irrelevant statement as was required for keeping the topic secret ($M = 3.23$), $F(1, 77) = 245.44$, $p < .001$. Statements made to keep a topic secret were also rated as more memorable than truthful statements, $F(1, 77) = 17.21$, $p < .001$. Although statements made to keep a topic secret seemed more memorable than truthful statements, the lie statements participants devised to cover up their true responses to a topic question were the most memorable by this analysis.

The written statements participants made after responding to the experimenter's questions about the 24 topics were also rated by a coder in terms of memorability. For the lie and truth statements, of course, these written statements reflect what was said on videotape; however, for secret topics the written statements divulged participants' true answers to the questions rather than their videotaped irrelevant answers. For this measure, there was also a significant main effect of instructions, $F(2, 154) = 105.67$, $p < .001$. In this case, though, sentences written on secret topics ($M = 3.02$) were rated as less memorable than sentences written on topics about which the truth was told ($M = 3.23$), $F(2, 154) = 4.47$, $p < .05$, or a lie was told ($M = 4.24$), $F(2, 154) = 116.39$, $p < .001$. Clearly, then, the memorability of the statements participants wrote after responding to the experimenter's questions cannot explain the memory accessibility of topics which were kept secret. In sum, the memorability ratings of participants' written and oral responses suggest that participants' earlier recall of secret topics compared to topics about which the truth or a lie was told is not likely to be traceable to the memorability of the specific secret statements made in response to the experimenter's questions.

Study 3: Self-Reported Preoccupation With Secrets

A key prediction of the preoccupation model is that during secrecy, suppression and intrusion of the secret thought become linked. Studies 1 and 2 supported this idea by showing that secrecy breeds accessibility, an indicator of the auto-

matic activation and potential intrusiveness of the secret thought. These studies establish the role of suppression in this process only by implication, however, because prior research has linked suppression with automatic activation (Wegner & Erber, 1992). Study 3 was designed to provide a different sort of assessment of the link between suppression and intrusive thought during secrecy, one based on participants' self-reports of thinking. Although we recognized that self-reported thinking would not tap accessibility or automatic activation very accurately (cf. Wegner et al., 1993), we suspected that these reports could at least serve to indicate the general relationships among participants' experiences of suppression and their experiences of thought recurrence and reports of intentional and unintentional thinking. We also anticipated that a focus on self-reports might lend us some new insight into participants' phenomenal experience of secrecy.

We set out, then, to examine whether participants who were asked to keep a word secret during a stream-of-consciousness task would report increased attempts to suppress thoughts of the word and whether such reports would be correlated across participants with reports that the secret word came to mind unintentionally. To see whether this pattern was indeed reflective of suppression in general, we also investigated the pattern of reports of suppression and unintentional thinking among participants who were asked to suppress thoughts of the word, among participants who were asked to think of the word, and among participants given no instruction.

Method

Overview. Participants were presented four target words, one at a time, and were given 5 min to follow instructions about each word as they wrote their stream of consciousness. In each writing period, participants followed different instructions regarding the target word for that period. The instructions asked participants (a) to try to think about the target word, (b) to try not to think about the word (suppress), (c) to try to keep the word a secret, or (d) to write their stream of consciousness with no special instructions regarding the word. After each task, participants made ratings assessing aspects of their cognitive functioning during the writing task.

Participants. University of Virginia undergraduates (60 women, 59 men) participated in this study to help meet the requirements for an introductory psychology course. Data for 2 participants were discarded due to failure to complete the questionnaire packet. Participants were run in groups.

Procedure. Participants began by completing a consent form. Each participant was then given a packet containing four different randomly ordered parts. On the first page participants read that the purpose of the study was to see what happens when people perform several mental tasks while writing their stream of consciousness. On this same page a detailed description of the stream-of-consciousness task was given (see Pope, 1978). Participants were encouraged to write down "everything that comes to mind at the moment, be it a fantasy, memory, plan, feeling, image, idea, daydream, sensation, or anything else." Participants were given 2 min to practice writing their stream of consciousness.

Once the practice period was over, participants were told to turn to the next section of their packet for instructions. On this page, one of four possible target words (e.g., *car, child, house,* or *mountain*) was written and beneath this word was one of four sets of instructions (e.g., *think, suppress, secret,* or *control*). The "think" instructions read:

This part of the study calls for you to try to keep in mind a target word while writing stream of consciousness for 5 min. Your job is to try to think about your target word during the entire time you are writing.

The "suppress" instructions read:

This part of the study calls for you to try not to think about a target word while writing stream of consciousness for 5 min. During the time you are writing you should specifically try to put thoughts of your target word out of your mind.

The "secret" instructions said:

This part of the study calls for you to keep your target word a secret while writing stream of consciousness for 5 min. While you are writing you should try not to reveal what your secret word is. A group of experts on deception will review your writing and will attempt to infer what your target word was. Try not to express any hints as to your target word while you are writing.

The "control" instructions read: "There is no special task for you to do with this target word. During this part of the experiment your job is just to write down whatever comes to mind for the next 5 min." After 5 min, participants completed ratings of their thoughts during the writing period. Participants were paced through the booklet by the experimenter, moving through each of the four tasks and rating sets. After completing the final ratings, participants were debriefed and dismissed.

Packets. There were five versions of the packet handed out to participants in a random order. Every packet consisted of the same four target words and the same four instructions. The packets differed in terms of the order of presentation of the target words and the instructions so that every instruction was presented first in at least one version of the packet and so that specific target word and instruction were counterbalanced across packets.

Questionnaire. After each task, participants made Likert-type ratings on 1–7 scales. Suppression items included: "I tried to suppress thoughts of the target word while I was writing," "I felt that I had to keep pushing thoughts of the target word out of my mind," and "I actively tried not to think of the target word while writing." Intentional thinking items were: "I actively tried to think of the target word while writing," "I purposefully tried to bring thoughts of my target word to mind while writing," and "I concentrated on the target word while I was writing." Unintentional thinking items were: "Thoughts of the target word often 'popped' into my mind," "Sometimes I thought of the target word over and over," "I formed a visual image of the target word while writing," and "I thought of the target word a lot while I was writing." As a manipulation check for secrecy we included "I actively tried to keep the target word secret."

Results and Discussion

Reliabilities. Correlational analysis of the questionnaire measures indicated that the scales reached adequate levels of reliability. The three-item intentional thinking measure was reliable (Cronbach's α = .84), as were the three-item suppression measure (Cronbach's α = .76) and the four-item unintentional thinking measure (Cronbach's α = .79). All pairwise correlations of items within measures were positive and greater than .38 across the sample. Indices of suppression, intentional thinking, and unintentional thinking were computed as mean rating of items on each scale.

Correlations. The central hypothesis of this study was that

Table 2
Correlations of Measures in the Instruction Conditions of Study 3

Correlation	Instruction condition			
	Think	Suppress	Secret	None
Unintentional thinking/Suppression	−.03	.52**	.29**	.11
Unintentional/Intentional thinking	.50**	.36**	.55**	.60**
Unintentional thinking/Checkmarks	.34**	.57**	.44**	.41**
Unintentional thinking/Secrecy	.12	.18*	.47**	.19*
Suppression/Intentional thinking	−.51**	.10	−.19*	.01
Suppression/Checkmarks	.02	.35**	.17	.10
Suppression/Secrecy	.62**	.38**	.32**	.45**
Intentional thinking/Checkmarks	.22*	.20*	.29**	.28**
Intentional thinking/Secrecy	−.26**	.01	.25**	.08
Checkmarks/Secrecy	.08	.14	.26**	−.03

*$p < .05$. **$p < .001$.

participants keeping a target word secret should show a positive correlation between measures of thought suppression and unintentional thinking of the word. When participants tried to keep a target word secret they indeed reported more unintentional thinking as their attempts to suppress their thoughts increased, $r(117) = .28$, $p < .001$ (see Table 2). This correlation between suppression and unintentional thinking was also significant in the suppression condition, $r(117) = .52$, $p < .001$, and is significantly higher than the correlation in the secret condition, $p < .03$. When participants received instructions to think about their target word, in contrast, their reports of unintentional thinking were uncorrelated with reports of suppression, $r(117) = −.03$. This correlation was significantly lower than that in the suppression condition, $p < .001$, and as predicted, was also lower than that in the secret condition, $p < .02$. In the control condition, unintentional thinking and suppression were also negligibly correlated, $r(117) = .11$. This correlation is significantly lower than that in the suppression condition, $p < .001$, but not compared to the correlation in the secrecy condition, $p < .19$. It appears that secrecy, like suppression, enhances the relationship between reported thought suppression and unintentional thought.

The checkmarks participants made in the margin for each time they thought of the target word while writing stream of consciousness are also instructive as measures of thinking. It is probably incorrect to assume that these checkmarks always reflect either intentional or unintentional thinking alone. Rather, participants might use such checks to report intentional thinking when they are under "think" instructions, and unintentional thinking when they are under "suppression" or "secret" instructions. In general, however, the correlations between checkmarks and unintentional thinking were higher across all conditions (mean $r = .43$) than the correlations between checkmarks and intentional thinking (mean $r = .24$). This suggests that the checkmarks might be used as indicators of intrusion (as has been done in past research; see, e.g., Wenzlaff, Wegner, & Roper, 1988). This interpretation suggests that suppression and secrecy instructions both instigated positive associations between self-reported suppression and intrusive thought. The positive correlation of suppression and checkmarks was sig-

nificant in the suppression condition $r(117) = .35$, $p < .001$, and approached significance in the secret condition $r(117) = .17$, $p < .08$. Nonsignificant correlations between suppression attempts and checkmarks were found in the control condition, $r(117) = .11$, and in the think condition, $r(117) = .02$. The only significant difference in correlations of suppression and checkmarks was between suppression and thinking conditions, $p < .01$. During suppression, then, there was a stronger relationship between rated suppression and checkmarks than during intentional thinking.

The distinction we have drawn between intentional and unintentional thinking is further supported by the relationship of each variable with the suppression variable. As previously described, unintentional thinking and suppression were significantly positively correlated in both the suppression and the secrecy conditions, and uncorrelated in the instructed thinking and control conditions. This pattern was not found, however, between intentional thinking and suppression. Instead, when participants received instructions to think of their target, intentional thinking and suppression were negatively related, $r(117) = −.51$, $p < .001$. Instructions to keep the target secret yielded a significant negative correlation between suppression and intentional thinking as well, $r(117) = −.19$, $p < .05$. The correlation between suppression and intentional thinking was not significant in the suppression or the control conditions. This result suggests that the intentional thinking measure is indeed tapping something quite unlike the unintentional thinking measure, in that participants see intentional thinking as opposing their attempts to suppress in the think and secret conditions.

This negative correlational relationship in the secret instruction condition might also reflect a different possibility. Perhaps participants keeping a target word secret must think of the target word, at some level, so that they are able to prevent slipping and revealing it. Suppression, therefore, would not be conducive to keeping this thought in mind. The correlations of the thinking variables with ratings of secrecy are consistent with this idea. Rated secrecy in the secrecy condition was correlated not only with unintentional thinking, $r(117) = .47$, $p < .001$, and with checkmarks $r(117) = .26$, $p < .001$—as the preoccupation model would suggest—but also with intentional think-

ing, $r(117) = .25, p < .001$. It may be that the desire to keep a secret is linked not only with suppression, but with the seemingly contradictory need to keep the secret intentionally in mind so that it will not be divulged.

Finally, it should be noted that ratings of secrecy were significantly correlated with ratings of suppression in all conditions. This finding suggests that the association between these self-ratings exists in each of the different instructional circumstances we imposed in this experiment.

Means. The means of the indices of suppression, intentional thinking, and unintentional thinking, as well as means for thought checkmarks and the secrecy item for the four instruction conditions are presented in Table 3. Although our primary concern in this study was examining the correlations among these measures in the different instruction conditions, the mean levels for these variables are of interest in establishing the effectiveness of the instruction manipulations, and in gauging some of the effects of these manipulations.

We expected that participants' reports of suppression would be highest after having read instructions to try not to think of their target word. The suppression measure was thus a manipulation check of sorts. Contrasts confirmed our predictions, as participants asked to try not to think about their target word reported more suppression ($M = 4.55$) than those who were asked to think of the target word ($M = 2.29$), $F(1, 348) = 201.89, p < .001$, asked to keep the word secret ($M = 3.91$), $F(1, 348) = 16.19, p < .001$, or given no instructions about the target word ($M = 2.95$), $F(1, 348) = 101.09, p < .001$.

Another interesting finding was an increase in reports of suppression when participants were keeping a secret. During the secrecy instruction, participants reported significantly higher levels of suppression ($M = 3.91$) than when either thinking about the target word ($M = 2.29$), $F(1, 348) = 103.73, p < .001$, or when given no instructions ($M = 2.95$), $F(1, 348) = 36.43, p < .001$. Overall, suppression attempts were highest under suppression instructions, but instructions to keep a target secret produced significantly higher levels of suppression than did instructions to think about the target or no instructions.

The measure of intentional thinking can be considered a check of whether or not participants tried to think of their target word when their instructions so specified. Contrasts revealed that participants reported more effort to keep their target thought in mind when instructed to do so ($M = 5.27$) than when asked to suppress their target word ($M = 1.95$), $F(1, 348)$

Table 3
Means for Suppression, Intentional Thinking, Unintentional Thinking, Thought Checkmarks, and Secrecy in Study 3

Measure	Instruction condition			
	Think	Suppress	Secret	None
Suppression	2.29	4.55	3.91	2.95
Intentional thinking	5.27	1.95	2.74	2.97
Unintentional thinking	4.99	3.65	3.55	3.59
Thought checkmarks	10.35	4.65	4.80	5.24
Secrecy	2.16	3.38	5.24	2.47

$= 418.71, p < .001$, than when instructed to keep their target word secret ($M = 2.74$), $F(1, 348) = 243.15, p < .001$, or than when given no instructions regarding the target word ($M = 2.97$), $F(1, 348) = 200.95, p < .001$.

The third variable of interest—unintentional thinking—was not a manipulation check, but it is instructive to examine means for this measure across conditions. Under instructions to think about the target word, participants reported greater unintentional thinking of the target ($M = 4.99$) than when under suppression instructions ($M = 3.65$), $F(1, 348) = 66.06, p < .001$, secrecy instructions ($M = 3.55$), $F(1, 348) = 76.29, p < .001$, or no instructions ($M = 3.59$), $F(1, 348) = 72.11, p < .001$. The means for unintentional thinking did not differ between suppression, secrecy, and no instructions. A straightforward application of the preoccupation model would suggest that unintentional thinking should be greater for the suppression or secrecy instructions than for the control instructions, so these results are not consistent with the model. They are also inconsistent with prior research suggesting that suppression typically causes unintentional thinking (Wegner, 1992), however, so they thus lead us to wonder whether the self-report of unintentional thinking as measured here may not tap intrusive thought or cognitive accessibility as assessed in past research.

A similar observation occurred with the checkmarks participants made to indicate thought occurrences. The checkmarks showed a general increase during the think instruction. Trying to think about a target word led participants to make more checkmarks ($M = 10.35$) during their stream-of-consciousness writing than did trying to suppress ($M = 4.65$), $F(1, 348) = 119.24, p < .001$, trying to keep the thought secret ($M = 4.80$), $F(1, 348) = 113.05, p < .001$, or no instruction ($M = 5.17$), $F(1, 348) = 98.48, p < .001$. Means for suppression, secrecy, and control instructions did not differ. Again, then, if checkmarks are primarily a sign of intrusive thoughts, these results are not consistent with the preoccupation model. The model would suggest that intrusions should be greater in the suppress and secrecy instruction conditions than in the control condition.

As a different and more indirect way of assessing unintentional, intrusive thought, we formed an index consisting of the ratio of rated unintentional thinking to intentional thinking. The pattern of means for this ratio behaved more in line with the model. In fact, they resembled those for suppression, with a higher ratio of unintentional thinking reported by participants when they suppressed a target ($M = 2.09$) than when they thought of a target ($M = 1.01$), $F(1, 348) = 131.22, p < .001$, than when they kept a target secret ($M = 1.53$), $F(1, 348) = 35.28, p < .001$, and than when they were given no instructions ($M = 1.38$), $F(1, 348) = 56.71, p < .001$. Although the means fall in the expected direction, there was no significant difference on this ratio measure of unintentional to intentional thinking when participants kept a target secret ($M = 1.53$) versus when they were given no instructions ($M = 1.38$), $F(1, 348) = 2.53, p < .12$. The preoccupation model would suggest that intrusions should be greater in the suppression *and* secrecy instruction conditions than in the control condition. When participants kept a target secret, however, the ratio of unintentional to intentional thinking was significantly higher than when they had in-

structions to think about a target ($M = 1.01$), $F(1, 348) = 30.42, p < .001$.

Finally, the effectiveness of the secrecy instruction was assessed by analysis of the secrecy item. Contrasts revealed that when participants read instructions to keep their target word secret, they indeed reported greater attempts to keep the target secret ($M = 5.24$) than when they received instructions to think about the target ($M = 2.16$), $F(1, 342) = 257.30$, $p < .001$, instructions to suppress ($M = 3.38$), $F(1, 342) = 93.83, p < .001$, or no instructions ($M = 2.47$), $F(1, 342) = 208.11, p < .001$. In addition, the secrecy mean was significantly greater in the suppression condition ($M = 3.38$) than in the think condition ($M = 2.16$), $F(1, 342) = 40.37, p < .001$, and in the control condition ($M = 2.47$), $F(1, 342) = 22.46, p < .001$. This latter finding suggests that participants may feel that secrecy is a good strategy for thought suppression.

Summary. These data indicate that when participants are keeping a secret, their reports of thought suppression and intrusive thinking become linked. This linkage is also created during instructed suppression, but is not evident for instructed thinking or under no-instruction comparison conditions. Mean self-ratings for the instruction conditions largely indicated that the instruction manipulations had the expected effects: Secrecy instructions increased rated secrecy; suppression instructions increased rated suppression; and thinking instructions increased rated intentional thinking. In line with the preoccupation model, mean rated suppression was increased under secrecy instructions compared to controls. Although rated unintentional thinking per se was not increased in the secrecy or suppression conditions, a ratio of unintentional to intentional thinking showed higher levels in secrecy and suppression conditions than in the other conditions.

Study 4: Within-Subject Patterns of Preoccupation and Secrecy

The purpose of this study was to see if relationships among secrecy, thought suppression, and intrusion could be found within individual participants across a range of possible thought topics. We also wanted to examine these relationships in the context of the natural secrets of daily life rather than the experimentally-imposed secrets examined in prior studies. We predicted that topics about which a participant suppressed thoughts and topics that were likely to intrude upon consciousness were also more likely to be secret topics for that participant, and that suppressed topics and intrusive topics would also tend to coincide. Within-subject correlations of secrecy, suppression, and intrusion ratings across 50 different thought topics were calculated to assess whether these variables might be related in this way.

Method

Overview. Participants completed a three-part questionnaire. In the first part, participants indicated how intrusive their thoughts were on 50 diverse, preselected topics. The next section asked participants to rate how often they tried to suppress thoughts of each of these same 50 topics. Last, participants rated how much they kept each of these 50 topics secret from others.

Participants. Participants were 237 University of Virginia undergraduates (126 women, 94 men, and 17 participants who did not provide gender information) whose participation in this study earned them course credit in introductory psychology. All participants were run in one group session.

Procedure. Participants volunteered to participate in a group pretesting session in which they completed a questionnaire packet comprised of materials from several different studies. Included in this packet was our questionnaire. For this, participants read that the upcoming questions were part of a study of how people think about some of the things that they may keep secret from others. Emphasis was placed on the anonymity of participants' responses by explaining that when this section of the questionnaire packet was completed participants would place their anonymous answer sheets through a slot in a sealed box to only be opened later by the experimenter. Participants then read the following:

> Sometimes a thought will just 'pop' into our minds without us even having to try to think about it. Often these thoughts come to mind over and over, even though we are not trying to think about them and they are unrelated to what we are doing at the time. For instance, you might have thoughts of an upcoming exam pop to mind even though nothing really reminds you about it. For this part of the questionnaire we will refer to these thoughts that pop to mind repeatedly as *intrusive* thoughts. For each of the 50 items below, please rate how intrusive your thoughts are about the item.

Using a 5-point scale with the endpoints *not intrusive at all* to *extremely intrusive*, participants then indicated the intrusiveness of their thoughts about each of the 50 topics that were listed.

On the next page, participants read these instructions:

> When certain thoughts come to mind, we don't mind thinking about them and sometimes we even enjoy it. However, there are other thoughts that we may try to stop quickly whenever they come into mind. For example, you might try not to think about food when you are on a diet, or you might try not to think about a sore tooth and a possible visit to the dentist.

For each of the 50 topics, participants then rated how often they suppressed thoughts of the topic on a 5-point scale. The stem "I try not to think about this . . ." was rated from *never* to *very often*.

The secrecy rating directions participants read consisted of the following:

> All of us have secrets. Sometimes we keep a secret from everyone and other times we only keep something secret from one or a few people. For example, you might not tell anyone about your crush on a movie star, or you might keep secret from your friends your score on the SAT.

Participants then rated how secret their thoughts of the 50 topics were on a 5-point scale from *not at all* secret to *extremely secret*. Participants also indicated their sex, and when they had completed this packet, they placed their anonymous answer sheets in a slotted box labeled "Secret Thoughts" and received hypothesis explanation sheets from the experimenter.

Topics. The topics that participants rated on thought intrusiveness, suppression, and secrecy are listed in Table 4. These topics were chosen for the questionnaire on the basis of a review of the literature on common topics of obsession, secrecy, worry, suppression, and intrusive thought (e.g., Baxter & Wilmot, 1985; Borkovec, Robinson, Pruzinsky, & DePree, 1983; Goleman, 1985; Hillix, Harari, & Mohr, 1979; Imber-Black, 1993; Lane & Wegner, 1994; Larson, 1985; Norton, Feldman, &

Table 4

Mean Ratings and Ranks of Topics on Secrecy, Suppression, and Intrusion in Study 4

Topic[a]	Secrecy		Suppression		Intrusion	
	Rating	Rank	Rating	Rank	Rating	Rank
Masturbation	3.34	1	2.84	6	2.09	31
A lie I told	3.20	2	2.77	8	2.82	13
Being lonely	3.13	3	3.06	2	3.08	10
Someone I have a crush on	3.06	4	2.76	9	3.74	3
Someone I am jealous of	2.97	5	2.79	7	2.60	18
Sexual intercourse	2.82	6	2.49	17	3.76	2
Cheating on a lover or a friend by seeing someone else	2.80	7	2.59	15	2.55	20
My body	2.73	8	2.63	13	3.53	4
Being in love	2.70	9	2.39	24	3.97	1
Doing poorly at school	2.56	10	3.04	3	3.51	5
Dying	2.54	11	2.95	4	2.81	14
Touching a stranger sexually	2.53	12	2.36	27	2.00	34
Cheating in school	2.51	13	2.72	12	2.02	33
Getting AIDS	2.36	14	2.85	5	2.63	17
Failing a test	2.34	15	3.12	1	3.25	6
Stealing things	2.27	16	2.38	25	1.59	44
Watching X-rated videos	2.26	17	2.22	36	1.74	37
Fantasies about a teacher	2.24	18	2.15	40	1.70	41
Forgetting to put on deodorant	2.21	19	2.17	39	2.27	25
Being a homosexual	2.05	20	2.47	18	1.54	46
Finding out that someone lied to me	2.04	21	2.59	15	2.81	14
Rape	2.04	22	2.74	10	2.20	28
God	2.04	23	1.96	48	3.13	8
Killing someone	2.02	24	2.29	32	1.57	45
Wearing clothes that aren't clean	1.97	25	2.33	29	2.21	27
Going crazy	1.97	26	2.44	19	1.84	36
My parents	1.95	27	2.11	42	3.18	7
Wearing unfashionable clothes	1.94	28	2.43	20	2.38	23
My father	1.93	29	2.06	44	2.99	11
Using marijuana	1.91	30	2.35	28	1.73	39
Dating someone of another race	1.91	31	2.01	46	2.20	28
Incest	1.91	32	2.25	33	1.29	49
Drinking alcohol	1.85	33	2.40	22	2.94	12
Hitting someone	1.78	34	2.31	31	2.09	31
My mother	1.76	35	1.91	49	3.12	9
Getting sick	1.71	36	2.60	14	2.22	26
Eating rich food or desserts	1.71	37	2.74	10	2.71	16
Making myself throw up	1.67	38	2.03	45	1.40	48
The devil	1.66	39	2.37	26	1.74	37
Having someone hit me	1.65	40	2.19	37	1.69	42
Getting mugged	1.65	41	2.33	29	2.13	30
Smoking cigarettes	1.64	42	2.42	21	1.69	42
Washing myself	1.63	43	1.73	50	2.43	21
Leaving my door unlocked	1.56	44	2.23	35	2.41	22
Germs	1.53	45	2.19	37	1.95	35
Sleeping in through an important class	1.45	46	2.40	22	2.58	19
Crack or cocaine	1.43	47	2.14	41	1.28	50
Being hit by a car	1.39	48	2.24	34	1.71	40
Losing my keys	1.34	49	2.09	43	2.38	23
Getting bitten by a dog	1.23	50	1.97	47	1.43	47

[a] Topic words are ordered by mean ranking on secrecy.

Tafoya, 1974; Rachman & de Silva, 1978; Rachman & Hodgson, 1980; Wegner, 1989). To ensure wide variation, we selected topics ranging from trivial to extremely important, and from those that could be highly personal to those that might be quite public.

Results

Across all participants and topics, the mean ratings showed that we had included topics that inspired some secrecy ($M = $ 2.10), suppression ($M = 2.41$), and intrusion ($M = 2.37$). Our prediction of associations between secrecy, thought suppression, and thought intrusion was assessed by computing the correlations within each participant between the participants' ratings of secrecy, suppression, and intrusion across topics. Correlations for each variable pair were then averaged across participants, and the mean was tested for significance against an assumed population correlation of zero. (We did not transform

correlations to Fisher's Z scores for this analysis because the large participant sample precluded potential problems associated with nonnormality of the r distribution.)

The mean within-subject correlation between thought suppression and secrecy ($r = .31$) was significantly greater than zero, $t(231) = 15.74, p < .001$, supporting the idea that participants suppress thoughts of topics that they keep secret. To avoid "spilling the beans," secret keepers apparently find they must try to eliminate thoughts of the secret item from mind. It is also possible that this relationship works in the opposite direction, with people keeping secret those items about which they are trying not to think. People may not tell others about a topic that they are trying to suppress so that perhaps they can avoid having others reminding them of the unwanted topic, or because they impose some kind of general prohibition on the topic in hopes of keeping it out of mind.

Our findings were also consistent with the prediction that secrecy is linked with the second component of obsessive preoccupation—intrusive thoughts. The mean within-subject correlation between thought intrusion and secrecy ($r = .32$) was significantly greater than zero, $t(235) = 18.09, p < .001$. It appears, then, that thoughts tend to be secret and intrusive at the same time. Keeping an item secret may lead the secret thought's occurrence in consciousness to be experienced as intrusive. Although it is possible that the reverse relationship between intrusive thinking and secrecy exists—that people keep secret those items that intrude into their consciousness—this causal direction seems less plausible. It would seem that a thought that springs frequently to mind would be a prime candidate for discussion with others.

A final mean within-subject correlation between thought suppression and thought intrusion ($r = .23$) revealed that these two properties of thought topics are significantly related, with their correlation significantly greater than zero, $t(233) = 7.52, p < .001$. The causal direction of this correlation can be viewed as either thought suppression triggering intrusive thoughts or intrusions increasing efforts at thought suppression. The preoccupation model would assume that both directions of causation contribute to the observed correlation. The observation of a relationship between suppression and intrusion, by now common in this series of studies, occurred here too when the link was assessed across multiple topics of thought.

The general pattern of means for secrecy, suppression, and intrusion is also informative, in a "Geraldo Rivera" sort of way. The 50 topics and their means for each of these three main variables are shown in Table 4. As the correlations would suggest, several of the most secret items are also items that are high on thought suppression and/or thought intrusion. Even though there are some topics that are exceptions to this pattern, (e.g., thoughts of God are intrusive but not secret and dying is a topic that is suppressed but not secret), these analyses show that there still remains a remarkable correspondence between secrecy and the elements of obsessive preoccupation.

General Discussion

Together, the results of these studies support the preoccupation model of secrecy. This model suggests that secrecy promotes suppression of thoughts of the secret topic, which then sets in motion a cycle of suppression and intrusion that can continue even after secrecy is lifted.

Evaluating the Preoccupation Model

There are a number of different sorts of evidence provided by these data that pertain to different aspects of the preoccupation model. It is useful to sort out the evidence by considering in turn each of the main propositions of the model.

Secrecy to suppression. The first step proposed in the model is that secrecy causes thought suppression. Our studies provide three lines of evidence to support this claim. One line of evidence that secrecy leads to thought suppression is based on inference. Participants who kept a target word secret under high cognitive load in Study 1 showed slower color-naming responses to their target word than participants not under load and than participants not keeping a secret. These findings parallel those from studies by Wegner and Erber (1992) and Wegner et al. (1993) in which participants who suppressed a thought showed the same form of increased accessibility of thoughts for the suppressed target. The results of Study 1, then, suggest that thought suppression is an active mental control strategy used by individuals attempting to keep a secret and that this attempt may make the secret thought more accessible to consciousness. It is possible that the causal path from secrecy to accessibility in our study could pass through some other currently unknown mediator, of course, and the conclusion that secrecy causes accessibility by producing suppression must therefore be understood as preliminary. The results of Study 2 similarly suggest that secrecy makes thoughts accessible, however, and this too implies that suppression may occur on the way from secrecy to accessibility.

A second line of evidence for secrecy causing suppression is the self-report findings for suppression in Studies 1 and 3. In Study 1, participants instructed to keep a word secret reported significantly higher levels of suppression of that word than participants given no secrecy instructions. In Study 3, when receiving instructions to keep a target word secret, participants indicated significantly higher levels of thought suppression than when they received instructions to think about their target word, or when they received no instructions at all. When keeping a secret, thought suppression seems to be the standard strategy. Only when participants in Study 3 were specifically instructed to suppress thoughts of the target word did they report higher levels of thought suppression than they reported when they were trying to keep the word secret.

Correlational evidence for the link from secrecy to suppression was provided in Studies 3 and 4. In Study 3, self-reports of secrecy and suppression were significantly correlated in every instructional condition of the experiment. In Study 4, a significant positive mean within-subject correlation across 50 topics of thought was found between participants' self-ratings of secrecy and suppression. Our preferred interpretation of these correlations is to say that secrecy typically causes suppression. The direction of causation cannot be determined from correlational evidence, however, as it may be the case that suppression creates the use of secrecy. Indeed, there was some evidence for this in Study 3, in that participants indicated greater intentions

to keep a topic secret when they were instructed to suppress it than when they were asked to think about it or given no instruction. The finding of a significant correlation between secrecy and suppression across topics of thought within subjects is consistent with the model's suggestion, however, that keeping a secret is associated with the use of the strategy of thought suppression.

Suppression to intrusion. The next step in the preoccupation model is that thought suppression leads to intrusive thinking of the secret. Previous research has found that there is a causal link between suppression and intrusive recurrence of the suppressed thought (Wegner, 1992). The present Studies 1 and 2 merely imply this effect, as they suggest that when secrecy causes cognitive accessibility of a secret thought, it may do so by producing suppression of the thought. The suppression-induced intrusive thought we would predict on the basis of the preoccupation model was not observed as the result of instructions to suppress in Study 3; this anomaly for the model might be explained as an indication that the measures we used to tap intrusive thinking in this study—reports of unintentional thinking and checkmarks for thought occurrences during stream-of-consciousness writing—are not strong indicators of intrusive thought. The positive correlations of these measures with self-reported intentional thinking does suggest this possibility. And we did find that a ratio of unintentional to intentional thought behaved as predicted, with highest levels in the secrecy and suppression conditions. We suspect that measures of thought accessibility such as those used in the first two studies might provide more reliable and defensible assessments of the propensity toward unintentional and intrusive recurrence of thought.

Correlational findings from Studies 3 and 4 are consistent with a link between suppression and intrusions. In Study 3, when participants received instructions to suppress thoughts of their target word, they showed a significant positive correlation between self-reported attempts at thought suppression and unintentional thinking of the target. Using checkmarks as another measure of intrusive thinking in this study, thought suppression and intrusions were again positively correlated. The findings of Study 4 also point to a relationship between suppression and intrusive thinking. A significant mean within-subject correlation was found between thought suppression and intrusiveness of topics. As the preoccupation model proposes, thought suppression is linked with intrusive thinking of the suppressed thought. Perhaps it may also be true that intrusive thoughts trigger further attempts at thought suppression. This is the crux of the next step in the preoccupation model.

Intrusion to suppression. A person trying to push an unwanted thought from consciousness is likely to experience the increased and intrusive return of the suppressed thought. Because it is certainly not pleasant to have this banished thought popping to mind so often, attempts are made again to suppress it. The third step of the preoccupation model is that intrusions lead to thought suppression. The correlational results from Studies 3 and 4 that were described as evidence for thought suppression leading to intrusions are also consistent with this third step. The positive correlation between unintentional thinking and suppression in the suppression and secret conditions of

Study 3 fits with the idea that when unwanted intrusive thoughts spring to mind they are relegated to unconsciousness by means of thought suppression. Similarly, the mean within-subject correlation between intrusiveness and thought suppression in Study 4 is consistent with intrusions leading to thought suppression.

Secrecy to intrusion (through suppression). The preoccupation model also predicts a connection between secrecy and intrusive thought of the secret. According to the model, secrecy works through thought suppression to produce this effect. Evidence for this relationship can be found in all of our studies. Participants in Study 1 who kept their target word secret showed more interference of their target word on a color-naming task when they were under high cognitive load compared to participants under low load or participants who did not keep the word a secret. Study 2 also lends credence to the position that secrecy begets intrusive thinking, but in this case order of recall was used as the measure of accessibility. Participants showed earlier recall of topics they had kept secret compared to topics about which they had told a truth or a lie. Secrets, as in the first study, were highly accessible to consciousness. Secret-keepers display a state of mind in which the forbidden thought seems ready to enter awareness at the slightest prompting. This study also showed that this increased accessibility of secret thoughts did not only occur during the keeping of the secret; 10 min after telling a lie, a truth, or a secret about 24 topics, participants recalled the secret topics earlier. Secrets remain at the "top of the head" for quite a while, and thus serve as a continued burden. With frequent intrusions of the secret thought, the likelihood of "blurting out" the secret may also be increased.

Study 4 provided additional support for the possibility that secrecy leads to intrusive thinking. A positive mean within-subject correlation was found between secrecy and intrusiveness of topics. Keeping an item secret may lead the thoughts of the secret to intrude upon consciousness. Again, of course, causal direction is an issue in the interpretation of correlation, and we should point out that intrusive thoughts might also be chosen for secrecy as a result of their intrusiveness.

Secrecy and the suppression/intrusion relationship. The most complete examination of our model was provided in Study 3. Rather than showing the connection between just two variables, this study allowed us to examine a number of links in operation. Here the imposition of secrecy was found to introduce a significant association between suppression and intrusions. A similar relationship was found in the suppression condition. This was not the case for participants trying to think of the topic; their reports of suppression were negatively related to reports of intrusion. This negative correlation signifies that the cycle of suppression and intrusions was not occurring in this condition. When the goal is to think actively about something, suppression questions may be interpreted by participants as reflecting a failure to perform the intentional thinking task—so the assumption is made that if suppression occurs then certainly thinking would not. People thinking a thought on purpose may assume that they are not suppressing if they are doing a good job of thinking.

For people keeping secrets, on the other hand, suppression is not seen as the opposite of intrusion and, in fact, the two may

very well be experienced in tandem. In their experimental study of secret relationships, Wegner et al. (1994) found a similar connection between suppression and intrusions. Participants who made secret contact with each other showed a significant positive correlation between suppression of thoughts of their partner and intrusive recurrence of these thoughts. The circumstances of keeping a secret seem to provide a strong context for the formation of a positive relationship between suppression and intrusions.

Although the elements of secrecy, thought suppression, and intrusions seem so intertwined, data from these studies suggest that there is a sensible sequence to their interrelations—the sequence proposed in the preoccupation model. According to this model, secrecy begets thought suppression, which leads to intrusions, and suppression and intrusion then serve cyclically as catalysts to each other. There could be other paths of causation beyond this simple one. For example, it may be the case that as this obsessive preoccupation with the secret thought develops it becomes part of the secret. Perhaps when secret-keepers attempt to withhold some original truth they become aware and afraid of the burgeoning obsessive preoccupation, and with this fear they try to keep the fact of their preoccupation a secret as well. We can envision yet other paths of causation that could embellish the preoccupation model, and that should be considered in the pursuit of providing a complete account. Our research has not captured the entire workings of the model in one setting, nor have we established direct evidence for the circular causation that the model implies. At best, we can conclude at present that there are multiple lines of evidence converging on each segment of the model, and that it thus provides a point of reference for further investigation.

If our model is correct, removing the element of secrecy does not necessarily guarantee elimination of obsessive preoccupation with the previously secret thought. Once a vicious cycle of thought suppression and intrusive thinking is set into play, it may become a cognitive "perpetual motion" machine, one that operates continually and seemingly without any further external motivation. Previous research has shown that the shelf life of secrets (even when they are removed from the shelf) can be rather long. Although, as of yet, no experimental evidence has been found for this idea, the Wegner et al. (1994) survey studies found that relationships and crushes which were kept secret during the time they were ongoing were topics of obsessive preoccupation for participants who were reporting on them an average of 10 years after the relationships or crushes were over. Thought suppression initially chosen to protect a secret bearer from revealing the secret can take on a life of its own, bringing about a new worry—the development of an obsessive preoccupation that can potentially linger for years.

The introduction of certain factors into the act of secret keeping could potentially exacerbate the turmoil created by the preoccupation cycle. Guilt and anxiety often come part and parcel with keeping secrets. It is possible that as the mind repeatedly returns to the secret thought, physiological responses associated with guilt or anxiety resurface as well. Although our studies did not examine secrecy's effects on physiological reactions, in a related vein, Wegner, Shortt, Blake, and Page (1990) found that participants who suppressed exciting thoughts later showed increased skin conductance levels when these thoughts returned to mind. According to this reasoning, secret thoughts about which a person feels guilty or anxious would increase autonomic activity with every intrusion of the secret thoughts. For secret-keepers, for whom the unwanted thoughts could be potentially threatening, this "intrusion reaction" could lead to a renewed bid at mental control, thus energizing the preoccupation cycle. No matter if the secrets we keep are those that we dread revealing (such as a failed exam) or those that are laced with an air of excitement (such as a hidden romance), the preoccupation model should cover the gamut of secret-keeping circumstances.

Of course, there may be mechanisms other than the preoccupation cycle that are responsible for these cognitive consequences of secrecy. One possibility is that secrecy requires effortful processing in general, and this deeper level of thinking about the secret may create increased accessibility and memorability of secret thoughts. Several studies have shown, however, that more processing of a thought does not necessarily make the thought more accessible (e.g., Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994). Wegner and Erber (1992) found that effortful processing by itself, such as that done by participants when they are instructed to concentrate on target words, does not increase accessibility of the words, but the coupling of a target with instructions to suppress it does. Participants in our Study 1 who kept secrets responded as did participants in Wegner and Erber's (1992) study who suppressed target words, with thoughts of the suppressed or secret targets becoming highly accessible under high load. If secrecy simply involved effortful processing, then participants in our study who kept a secret could just as likely have shown effects paralleling those of participants in Wegner and Erber's (1992) study who actively thought about target words. There seems to be more involved in the connection between secrecy and its cognitive repercussions than the simple explanation of additional effort expended by secret keeping.

The Dangers of Secrecy

Freud's psychoanalytic approach depended on the core concept of the pathogenic secret (Ellenberger, 1966) and on the idea that bringing secret thoughts or impulses to consciousness would help to remove their malignancy. Unless these secrets were brought into awareness, they would come to the surface in the form of dreams, psychosomatic illnesses, unwanted emotions, and other symptoms. From this viewpoint, secrecy is a coverup of personal unwanted thoughts.

The preoccupation model suggests that secrecy can create unwanted thoughts rather than just arise as a response to them. A person might implement secrecy on a whim, for example, so as to ease the strain of a social situation. Some minor fact is covered up for no real reason. The preoccupation model suggests that applying secrecy to any topic, even innocently, may induce a preoccupation in which thoughts of the secret become intrusive and troubling—perhaps even to the point of provoking psychopathology (Wegner & Lane, in press). Our studies suggest it is not just unseemly secret topics that foster obsessive thinking, after all, as even random topics such as "house" kept

secret from an experimenter for a moment became accessible and potentially intrusive.

Once obsessive preoccupation develops, emotions are inclined to follow. Tesser and Paulhus (1978) found that the more a person thought about another person or object, the more the original emotions felt toward the person or object intensified. Along these same lines, Wegner et al. (1994) found that previously unacquainted partners who secretly touched each other were more attracted to each other than were couples who did not make contact or than those who did so openly. The slight positive emotions felt toward the partner were intensified when secrecy was added to the relationship. It is not difficult to imagine the opposite effect, though, in which a person feels the need to withhold a truth to which some negative feelings are attached. Secrecy might create a preoccupation which could pave the way for the emergence of hatred. Emotions of many kinds could be intensified by the secrecy-induced intrusion of the emotional thoughts to mind.

In proposing that disclosure of secrets is psychologically therapeutic, theorists such as Pennebaker (1990) and Stiles (1987) have suggested that the release of a secret reduces the person's level of emotional inhibition and so releases the person from a constant demand for behavioral and physiological work. In these models, as in Freud's, it is difficult to specify just why secrets are so powerful. Why should keeping a secret take over a person's life? The preoccupation model suggests how this can happen: The cognitive strategy of suppression sets in motion a cyclic process that can gather force over time to make any secret a powerful source of runaway obsession.

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