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Cherry Pit Primes Brad Pitt: Homophone Priming Effects on Young and Older Adults' Production of Proper Names

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Abstract

This study investigated why proper names are difficult to retrieve, especially for older adults. On intermixed trials young and older adults produced a word for a definition, or a proper name for a picture of a famous person. Prior production of a homophone (e.g., pit) for a definition increased correct naming and reduced tip-of-the-tongue experiences for a proper name (e.g., Pitt). Among participants with no awareness of the homophone manipulation, older but not young adults showed these homophone priming effects. With a procedure that reduced awareness effects in Experiment 2, prior production of a homophone improved correct naming only for older adults, but speeded naming latency for both age groups. We suggest that representations of proper names are susceptible to weak connections that cause deficits in the transmission of excitation, impairing retrieval especially in older adults. We conclude that homophone production strengthens phonological connections, increasing the transmission of excitation.

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"I'll never forget-what's-her-name" expresses the familiar experience of vividly remembering a person, but not their name. People's names are not only more difficult to learn than biographical information (Cohen & Faulkner, 1986; McWeeney, Young, Hay, & Ellis, 1987) but also more difficult to retrieve once learned (e.g., Young, Hay, & Ellis, 1985). Older adults in particular suffer retrieval failures for familiar proper names (Maylor, 1990), reporting this as their most irritating and embarrassing memory problem (Lovelace & Twohig, 1990). The tip-of-the-tongue experience (TOT) is a retrieval failure coupled with a strong feeling of being on the verge of recall (see Brown, 1991). Proper names constitute the majority of naturally occurring TOTs and the increase in TOTs with aging is greater for proper names than for other types of words (Burke, MacKay, Worthley & Wade, 1991; Evrard, 2002; Rastle & Burke, 1996). TOTs appear to be caused by a failure to retrieve phonology (James & Burke, 2000; Meyer & Bock, 1992; White & Abrams, 2002) and thus they can provide information about the locus of the proper name retrieval deficit.

Why are proper names so difficult to retrieve? Researchers and philosophers agree that proper names carry reference because they indicate individuals, but little sense or meaning because they indicate few attributes or qualities (Cohen, 1990; Kripke, 1980; Mill, 1843/1856; Semenza, 1997; Valentine, Brennen & Bredart, 1996). Thus, for example, we may have considerable semantic knowledge about a specific person, but their name does not imply these semantic features for a different person with the same name, except possibly features for sex or ethnicity. The paucity of semantic content for proper names makes them more difficult to learn, and to retrieve once learned (Burke et al., 1991; Cohen, 1990). A few exceptional proper names

do have meaning either because they are unusually descriptive (e.g., Snow White*)* or have acquired meaning from the characteristics of a person they refer to (e.g. Scrooge*)*. Cartoon characters with such proper names were correctly named more often and with fewer TOTs than equally familiar characters with less meaningful names (e.g., Peter Pan*)* (Bredart & Valentine, 1998). Similar benefits to retrieval should hold for proper names like Kleenex or Xerox which have acquired the meaning of the products themselves[1].

The different semantic content of proper versus common names is represented in Figure 1, which depicts semantic and phonological representations of the common noun/proper name homophones pit/Pitt within an interactive activation model, Node Structure Theory (NST; MacKay, 1987). Models of production agree that homophones share phonological representations, but that their lexical and semantic representations differ (Cutting & Ferreira, 1999; Dell, 1990; Jescheniak & Levelt, 1994; Valentine, Moore & Bredart, 1995; but see, Caramazza, Costa, Miozzo & Bi, 2001). The lexical node for pit (common noun) is connected to a number of nodes in the semantic system representing information about the stony seed of fruits, whereas the lexical node for Pitt (family name) has no semantic connections independent of those for the person Brad Pitt. Brad is connected only to the semantic information: a male name.

Within NST, the distinct architecture of proper names, in particular, the absence of multiple semantic connections, makes them vulnerable to deficits in the transmission of priming, a form of excitation necessary to prepare a node for activation.[2] For example, the lexical node for pit would receive more top-down excitation than the lexical node for Pitt during respective attempts to produce each word: Top-down excitation to the lexical node for pit converges from many semantic attributes, whereas top-down excitation to Pitt occurs via a single connection from a representation for a specific person, Brad Pitt. Deficits in transmission of excitation from

semantic to phonological nodes can prevent a node from reaching a threshold of excitation necessary for activation, resulting in retrieval failure (MacKay, 1987).

Within NST, three factors weaken connections between nodes, decreasing the transmission of excitation: non-recent use, infrequent use, and participant aging (Burke et al., 1991; MacKay & Burke, 1990). When only a single connection links nodes in a production hierarchy, retrieval failure is more likely if the connection weakens because no other top-down connection can compensate for the transmission deficit. For example, when the person node Brad Pitt is activated, a weak connection to Pitt (family name) would reduce the transmission of excitation to this node and to phonological representations for the name, making a TOT possible. Although words other than proper names have few semantic connections within this framework, the common noun thing or the article the, for example, they are unlikely candidates for TOTs because of their very high frequency (Harley & Bown, 1998). Even for proper names, TOTs occur mostly for names that have not been used recently (Burke et al., 1991).

To test this account of why proper names are so difficult to retrieve, we measured the effect of prior production of a homophone (cherry pit) on the probability of a TOT for a person's name (e.g., Brad Pitt). It has been proposed that production of a word strengthens connections throughout the production hierarchy for the word, and facilitates its subsequent production, a form of implicit learning (Dell, Reed, Adams & Meyer, 2000; Rastle & Burke, 1996; Wheeldon & Monsell, 1992). These repetition priming effects are well established when the prime and target word share lexical and semantic nodes, but not when they only share phonological nodes, as with homophones. For example, prior production of an identical name reduced latencies for naming a picture of an object or celebrity, but prior production of a homophone for the name had little or no effect (Valentine et al., 1995; Wheeldon & Monsell, 1992; see also Griffin, 2002)[3].

The failure to observe homophone priming effects on word production is surprising. On an empirical level, production of words that shared partial phonology with a target word increased resolution of a TOT for the target for both young and older adults (James & Burke, 2000; White & Abrams, 2002). On a theoretical level, two mechanisms would be expected to produce homophone priming effects within NST (MacKay, 1987) and similar models (e.g., Dell, 1986, 1990; Vitevitch, 2002). First, production strengthens connections among activated nodes, for example, increasing the availability of phonological nodes, even, in principle, when these phonological nodes are subsequently accessed via a homophone. Second, in interactive activation models such as NST, connections between levels of nodes are bidirectional so that excitation reverberates between lexical and phonological levels, although it diminishes over successive connections. For example, during production of Pitt, excitation spreads top-down to the lexical node for Pitt and then to phonological nodes. If pit has been produced recently (as in a homophone priming paradigm), connections among nodes for its phonological form /pɪt/ will be strengthened and these stronger connections will increase feedback to the lexical representation of Pitt (family name), increasing the probability of activation of the lexical node for Pitt .

Experiment 1

We created conditions conducive to transmission deficits in order to increase sensitivity to homophone priming effects: Proper names were the production targets and older as well as young adults were the participants. We measured TOTs, a state that occurs when semantic information is activated but transmission deficits prevent phonological retrieval (Burke et al., 1991). Within our theoretical account, proper names and aging will increase phonological retrieval deficits that produce TOTs, and these deficits will be ameliorated by prior homophone production. We also measured don't know responses, which occur when lexical selection fails. If

homophone production improves subsequent name production by also reducing "don't know" responses, it would implicate a change at the lexical level. In this homophone priming paradigm, participants produced a word for a definition or a proper name for a picture of a famous person on intermixed trials (see Figure 2). On critical trials the definition elicited a homophone (e.g., pit) or unrelated word (e.g., cane) for a subsequent picture (e.g., Brad Pitt).

Method

Participants. Fifty-eight young adults (M=19.05 years, SD=1.48) participated for course credit and 40 healthy older adults (M=72.23 years, SD=4.20) were paid. Nelson-Denny vocabulary scores were lower for young *(*M=17.97, SD=2.49) than older participants (M=21.97, SD=1.91), t(96)=9.11. (All reported effects are p<.05 or better unless noted otherwise.) Years of education were lower for young (M=13.09, SD=1.30) than older participants (M=16.26 (SD=2.93), t(96)=9.70. All participants were native English speakers.

Materials. Stimuli for the picture naming task were 86 target and 86 filler pictures selected from 218 photographs of famous people collected from the media. The pictures were cropped leaving only the face filling a rectangle 3 in by 3.5 in. The last names for target pictures, but not filler pictures, were familiar homophones. Target pictures elicited TOTs from at least one young and one older participant in a pretest where 10 young and 10 older adults named the 218 pictures.

Definitions were fill-in-the-blank statements with the blank including the first 1-2 letters of the intended response. There were 86 definitions for homophones of the surnames of people in the target pictures, and 129 definitions for unrelated words used for the 86 filler trials and 43 unrelated target trials (see Figure 2).

Procedure. A computer presented stimuli and recorded responses. Instructions directed participants to respond to the definitions by saying aloud the one word which best fit the blank, or "don't know", and to the pictures by saying the name of the person, or "don't know," or "TOT" if they were certain that they knew the name, but could not produce it at the moment. Each "TOT" response was followed by the query, "Are you thinking of (correct name)?" The experimenter recorded the participants' responses on the computer keyboard. If the participant responded "TOT" but was thinking of an incorrect name, the response was recorded as "don't know".

After 12 practice trials, there were 86 continuous sets of 4 trials consisting of alternating definitions and pictures as shown in Figure 2: a homophone or unrelated definition, a filler picture, a filler definition and a target picture. Sets of 4 trials were presented in a different random order for each participant. For each participant, half the target pictures were assigned to the homophone definition condition and half to the unrelated condition, with pictures in these two counterbalancing groups matched on number of correct responses in pilot testing. Pictures appeared equally often in each definition condition over participants.

After the experiment, participants were asked if they noticed any relationship between the pictures and the definitions, and if they tried to use this relationship when naming the pictures.

Results

Young and older participants responded incorrectly to 6.2% and 3.1%, respectively, of the definitions paired with target pictures and these picture naming trials were eliminated from analyses. Table 1 shows mean proportions of correct name, TOT and don't know responses for target pictures which were evaluated in separate MANOVA's. There were more correct name responses for young than older adults, $F_1(1,96)=4.06$, MSE=.13; $F_2(1,85)=6.17$, MSE=.12, and

for the homophone prime than unprimed condition, $F_1(1,96)=33.19$, MSE=.01; $F_2(1,85)=66.90$, MSE=.01. These variables interacted in the analysis by participants, $F_1(1,96)=5.47$, MSE=.01; $F_2(1,85)=1.07$, MSE=.01,[4]. The homophone priming effect was larger for older than young adults, although significant for each age group, $t(39)=6.73$ and $t(57)=2.75$, respectively (see Table 1).

There were more TOTs for older than young adults, $F_1(1,96)=13.49$, MSE=.04; $F_2(1,85)=35.28$, MSE=.01, and for the unprimed than homophone primed condition, $F_1(1,96)=31.97$, MSE=.01; $F_2(1,85)=21.73$, MSE=.01. The homophone priming effect was significant for both young, $t(57)=-3.22$, and older adults, $t(39)=-4.70$, and although numerically larger for older than young adults (see Table 1), the interaction was not significant.

There were fewer "don't know" responses for the homophone primed than unprimed condition, $F_1(1,96)=5.64$, MSE=.01; $F_2(1,85)=16.62$, MSE=.01, although this homophone priming effect was significant only for older adults, $t(39)=-3.09$.

Awareness. Some participants expressed awareness that definitions and pictures sometimes elicited homophones, and reported using this knowledge to anticipate the picture name. Mean proportions for 16 young and 28 older participants who reported no awareness of definition-picture relationships are shown in Table 1. Correct naming was greater for young than older unaware participants, $F_1(1,42)=5.35$, MSE=.14; $F_2(1,85)=14.21$, MSE=.14, for homophone than unprimed conditions, $F_1(1,42)=5.98$, MSE=.01; $F_2(1,85)=18.32$, MSE=.02, and these variables interacted, $F_1(1,42)=10.01$, MSE=.01; $F_2(1,85)=2.07$, MSE=.02, $p=.15$. The homophone priming effect was significant for older, $t(27)=5.29$, not young adults, $t(15)=-.05$, contrasting with the significant priming effect for both ages in the previous analysis including aware and unaware participants.

There were more TOTs for older than young unaware participants, $F_1(1,42)=7.08$, MSE=.05; $F_2(1,85)=39.87$, MSE=.02, for unprimed than homophone primed conditions, $F_1(1,42)=6.31$, MSE=.01; $F_2(1,85)=4.95$, MSE=.02, and there was a marginal age by definition condition interaction, $F_1(1,42)=3.70$, MSE=.01, p=.06; $F_2(1,85)=2.01$, MSE=.01, p=.16. The homophone priming effect was significant only for older adults, $t\ (27) = -3.88$, not young adults, $t\ (15) = -.41$, contrasting with the previous TOT analysis.

Don't know responses showed only a marginal age by definition condition interaction in the F_1 analysis, $F_1(1,42)=3.08$, MSE=.01, p=.087. The homophone priming effect was significant for older adults, $t\ (27) = -2.02$, but not young adults.

In sum, prior production of a homophone increased correct proper names and decreased TOTs for both young and older adults when aware and unaware participants were included. The beneficial effect for young adults, however, appears to depend on strategies based on awareness of the relation between the definition and picture name. In the analysis with only unaware participants, young adults showed no homophone priming effects, whereas older adults showed a priming effect on correct responses, TOTs and don't know responses. Inasmuch as production of the homophone strengthens connections, these findings suggest that weak connections contribute to older adults' difficulty in retrieving proper names more than to younger adults', a conclusion consistent with the greater number of TOTs for older adults overall. These conclusions, however, depend on older adults' accuracy in reporting that they were unaware, and on the sensitivity of young adults' relatively low rate of TOTs to priming effects. We designed Experiment 2 to limit the impact of strategies based on awareness and to increase the sensitivity of young adults' naming to priming effects by measuring speed of naming.

Experiment 2

We adjusted Experiment 1 procedure to make it more difficult for participants to use the definition response to anticipate the picture name: We decreased the number of primed pictures, increased the number of unrelated fillers, varied the lag between prime definition and target picture, and emphasized speed of responding.

Method

Participants. Thirty-six young (M=20.25 years, SD=1.06) and 36 older adults (M=71.33 years, SD=3.47) participated under the same conditions as in Experiment 1. Years of education were greater for older (M=16.33, SD=2.96) than young adults (M=14.58, SD=1.24), t(70)=4.04, as were vocabulary scores, (M's=20.60 and 23.00, SD's=2.54 and 1.67, respectively), t(70)=2.67.

Materials. Stimuli for the picture naming task included 20 target (homophone names) and 50 filler pictures named correctly by 70% of Experiment 1 participants in each age group. Twenty definitions elicited homophones of target proper names and 60 definitions elicited unrelated words from Experiment 1.

Procedure. For each participant half the target pictures were assigned to the homophone definition condition and half to the unrelated definition condition and within each condition, half the pictures appeared at a lag of 2, as in Experiment 1, and half at a lag of 4, with 2 filler definitions and 2 filler pictures between target definition and picture. The temporal interval between target definition and picture was approximately 5-10 seconds for lag 2 and 10-20 seconds for lag 4.

After participants responded to a definition, the correct word appeared with instructions to press the green button if this was the word they had said. If they had produced an incorrect response, participants were instructed to say the correct word aloud. With this procedure, the

intended prime word was always produced, preventing the elimination of trials because of incorrect prime production.

Participants produced only the last name of the person in the picture. Naming latency was measured from the onset of the picture to the participant's response using a microphone with input to a PsyScope button box millisecond timer. After a response, the correct name appeared on the screen and participants pressed the green button if they were correct and the red button if they were incorrect. At the end of the experiment, participants were queried about their awareness of the relationship between definitions and pictures. These questions and all other aspects of the procedure followed Experiment 1.

Results

Correct naming. There were 27 young and 9 older adults who indicated awareness. Awareness was a variable in the F_1 analysis and showed no significant effect or interaction. It was not included in the F_2 analysis because of empty cells in some counterbalancing groups. As shown in Table 2, correct naming was greater in the homophone than the unprimed condition, $F_1(1,68)=13.70$, MSE=.05; $F_2(1,19)=20.64$, MSE=.02, and the age by prime condition interaction was significant, $F_1(1,68)=8.80$, MSE=.05; $F_2(1,19)=18.90$, MSE=.01. The homophone priming effect was significant for older but not young participants, t's(35)=4.82 and .71, respectively. Older adults produced fewer correct names than young adults in the unprimed condition, $t(70)=-3.18$, but not in the primed condition. There was no effect of lag. Although a number of participants reported awareness of the relation between some definitions and pictures, the varying lag, large number of fillers, and emphasis on speed appear to have reduced the usefulness of awareness for improving performance.

Response times. Only latencies for correctly named pictures were included in the analyses. Median response times were used because of some excessively long latencies. There was no effect of awareness or lag in the F_1 analysis, and the F_2 analysis collapsed across these variables to avoid empty cells for some items. Older adults were slower than young adults, $F_1(1, 68)=5.59$, MSE=380114; $F_2(1,18)=3.83$, MSE=314214, $p=.066$ and naming was faster in the homophone than the unprimed condition for both age groups (see Table 2), $F_1(1, 68)=5.15$, MSE=282043; $F_2(1,18)=11.54$, MSE=89834. Homophone priming decreased naming latency, although no conclusion is possible about age differences in the size of these effects. Older adults made more errors than the young in the unprimed condition and thus latency for older adults may be underestimated here because difficult names with presumably slow latencies were selected out.

General Discussion

Successful retrieval of a proper name increased after prior production of a homophone, but among unaware participants, only for older not young adults in Experiment 1. This age difference in priming effects is not because older adults in Experiment 1 used awareness of homophones strategically but reported it less accurately than young adults. In Experiment 2 awareness did not affect naming, and homophone priming effects on correct naming followed results for unaware participants in Experiment 1: priming effects for older but not young adults. Older adults produced more TOTs and fewer correct proper names than young adults, but prior homophone production reduced this age deficit in Experiment 1, and eliminated the age deficit in correct naming in Experiment 2. When proper name retrieval did occur correctly, it was faster for both age groups after production of a homophone.

These findings are the first to show relatively long lasting homophone priming effects. One important difference between the present experiments and previous studies reporting no homophone priming effects is that here the maximum lag between definition and target was under 20 sec compared to previous studies with lags of 5-20 minutes (e.g., Valentine et al., 1995). Although repetition priming effects for the same word occur over long intervals (e.g., Wheeldon & Monsell, 1992), homophone priming effects, where overlapping representations are limited to the phonological system, may be more short-lived.

The pattern of findings increases our understanding of why older adults suffer more frequent word retrieval failures and why proper names are hard to retrieve. Within NST, homophone production affected proper name retrieval for old but not young adults because aging weakens connections, causing retrieval failures when connections among lexical and phonological representations in the production hierarchy are too weak to transmit adequate excitation. A similar mechanism of weak connections has been proposed to explain picture naming failures in aphasics (Dell, Schwartz, Martin, Saffran & Gagnon, 1997). Within this framework, homophone production increases the strength of connections that are critical for proper name production, increasing the probability of retrieval for older adults and speeding retrieval across age. We have argued that proper names are difficult to produce because their functional architecture, in particular, the absence of multiple semantic connections, renders them vulnerable to transmission deficits at the lexical and phonological levels (see Figure 1). Our results suggest that homophone production affects both levels.

An effect at the phonological level is compatible with a number of language production models that agree that homophones share phonological nodes (e.g., Dell, 1986, 1990; Jescheniak & Levelt, 1994; Levelt, Roelofs, & Meyer, 1999; MacKay, 1987). Thus, the benefit of stronger

phonological connections after production of a word accrues to homophones of the word. Stronger connections increase the transmission of excitation, and within the phonological system, this would reduce retrieval failures causing TOTs, as observed here in older participants, and increase speed of phonological retrieval, as observed here in all participants.

Evidence for a lexical level effect is that prior homophone production reduced don't know responses for older adults. Because don't know responses occur when lexical selection fails, this decrease suggests that the stronger phonological connections increased feedback of excitation to the target lexical node allowing it to compete more successfully for selection. Language production models differ in whether they allow input from the phonological system to influence lexical selection. This finding is inconsistent with sequential stage models of production in which lexical selection is a modular process with no input from phonology (e.g., Levelt et al., 1999). Under interactive models of production, however, increased phonological connection strength will facilitate lexical selection through interactive feedback of excitation between phonological and lexical nodes (Dell, 1986, 1990; Gordon & Dell, 2001; MacKay, 1987).

The present results bolster other evidence that excitation spreads from phonological to lexical representations during production and affects selection (e.g., Dell, 1990; Ferreira & Griffin, 2003; Harley & Bown, 1998; Vitevitch, 2002). Our findings, however, reveal a case where the effect on selection is visible only for older adults. Within the present theoretical framework, this selective effect reflects the interaction between age-related weakening of connections and the functional architecture of proper names. Weakened connections reduce transmission between phonological and lexical levels (Gordon & Dell, 2001; MacKay, 1987;

Taylor & Burke, 2002) and this impairs successful production of proper names because of the paucity of semantic top-down excitation for names, compared to other words.

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Ayda Austin is now at the Department of Psychology, University of Hawaii.

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Footnotes

[1]We are grateful to Sam Glucksberg for this point.

[2]Within NST "priming" refers to the theoretical mechanism of subthreshold excitation that prepares a node for retrieval and is similar to spreading activation in some models (MacKay, 1987). "Priming effect" is a behavioral change in which target information is more available after processing related information. To avoid confusion, we refer to theoretical "priming" as "excitation".

[3]A phonologically related (e.g., Cutting & Ferreira, 1999; Meyer & Schriefers, 1991) or homophone (Ferrand, Humphreys & Segui, 1998) prime word presented within a few hundred milliseconds of a picture facilitated naming, but these priming effects dissipate at longer prime-target intervals. This short-lived priming effect is attributed to residual excitation at phonological nodes shared by the prime and target, a different mechanism than the long-term repetition effects investigated here.

[4]When results of F_1 and F_2 analyses are inconsistent, we follow the F_1 analysis because F_2 may be overly conservative given that item selection is highly constrained and items are counterbalanced over treatments and matched in counterbalancing groups, (Cohen, 1976; Raaijmakers, Schrijnemakers & Gremmen, 1999).

Table 1

Mean Proportion Correct Name, TOT and Don't Know Responses by Participant Age, Awareness and Definition Condition in Experiment 1.

	Correct Name		TOT		Don't Know	
Definition Condition	Young	Older	Young	Older	Young	Older
			All Participants			
Unprimed	.42	.33	.12	.21	.45	.46
Hom. Primed	.47	.43	.10	.16	.44	.41
Priming Effect	.05	.10	.02	.05	.01	.05
			Unaware Participants only[1]			
Unprimed	.49	.32	.12	.23	.39	.44
Hom. Primed	.49	.41	.11	.18	.40	.41
Priming Effect	00	.09	.01	.05	.01	.03

Note: Priming effects are absolute values.

[1] Participants who were aware that definitions and pictures were homophones were eliminated. See text for explanation.

Table 2

Mean Proportion Correct Name Responses and Naming Latency (in milliseconds) by Participant Age, Awareness and Definition Condition in Experiment 2.

Correct Name

	Young			Older		
	Aware N = 27	Unaware N = 9	Combined	Aware N = 9	Unaware N = 27	Combined
Unprimed	.74	.71	.73	.61	.59	.59
Hom. Primed	.77	.73	.76	.85	.76	.78
Priming effect	.03	.02	.03	.24	.17	.19

Naming Latency

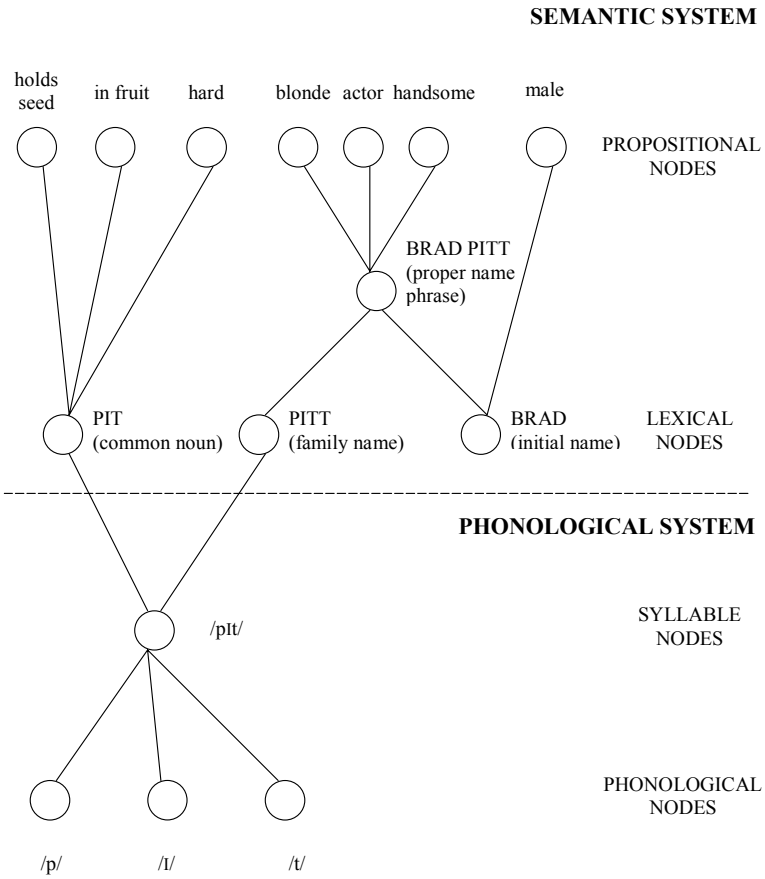
	Young			Older		
	Aware N = 27	Unaware N = 9	Combined	Aware N = 9	Unaware N = 27	Combined
Unprimed	1589	1664	1626	1835	1798	1817
Hom. Primed	1539	1420	1480	1537	1700	1618
Priming effect	50	244	146	298	98	199

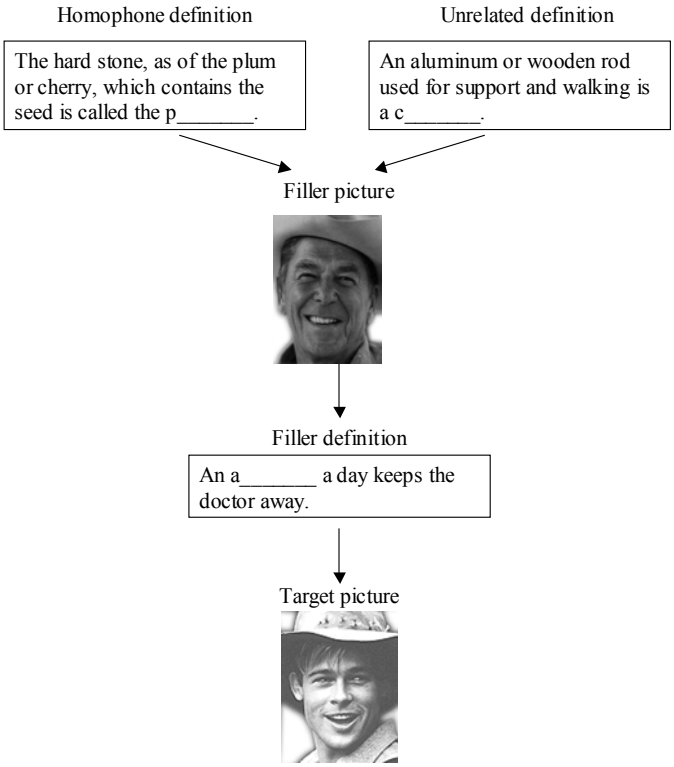
Note: Priming effects are absolute values.

Figure Captions

Figure 1. Semantic, lexical and phonological nodes representing the proper name homophone pit/Pitt in Node Structure Theory. Many nodes necessary for producing pit/Pitt have been omitted for simplification.

Figure 2. Illustration of sequence of trials presenting definitions and pictures in Experiment 1.


SEMANTIC SYSTEM
holds seed
in fruit
hard
blonde
actor
handsome
male
PROPOSITIONAL NODES
BRAD PITT (proper name phrase)
PIT (common noun)
PITT (family name)
BRAD (initial name)
LEXICAL NODES
PHONOLOGICAL SYSTEM
/pɪt/
SYLLABLE NODES
PHONOLOGICAL NODES
/p/
/ɪ/
/t/


Homophone definition
The hard stone, as of the plum or cherry, which contains the seed is called the p_____.
Unrelated definition
An aluminum or wooden rod used for support and walking is a c_____.
Filler picture
Filler definition
An a_____ a day keeps the doctor away.
Target picture