GETTING AROUND IN WORDLAND

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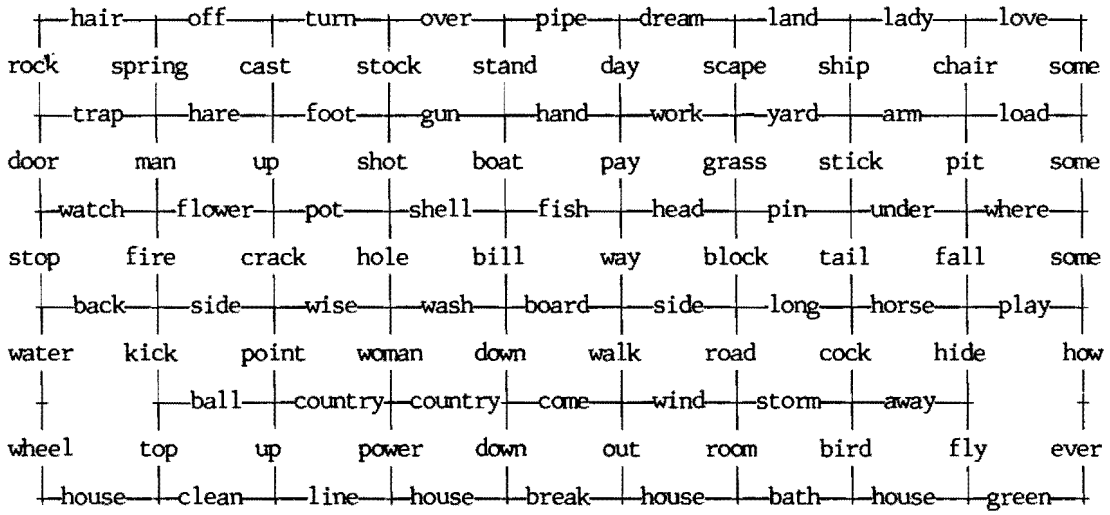
Over the years, **Word Ways** has presented several articles on word chains and networks. It was obvious that the networks could be developed into mazes, but I, for one, did nothing about it because I considered mazes kid stuff. However, John Harris sent me a copy of a maze by Robert Abbott that appeared in the May 1991 Discover magazine which is **not** kid stuff. This prompted me to create a maze in Abbott's style using word chains instead of colors; ana-gram-mar chains seemed most appropriate. In Abbott's mazes there are no dead ends. Instead, the traveler must obey certain rules in going from point to point, or else stay trapped in endless loops (hence his name, Gridlock). I forgot about my maze until, by coincidence, the February 1994 Games magazine published two mazes. One, by Abbott, is simpler than the one in Discover but uses the same principle. Here is my Logomaze:



The way street names join is different from the way words join in a simple rectangular array. There is no beginning or end to the above. Travelers may proceed through an intersection only if the names of the approaching and continuing streets add (in the direction of travel) to a solid (no hyphenation) word, or if the name does not change. Traffic cops have a list of acceptable words taken from Webster's Third International Dictionary. If you get a ticket, but you know the word would be sanctioned by another dictionary, you have to "tell it to the judge". Of the three tours below, only the first is legitimate, but you can take the second if you can persuade him that **womanwise** (below the line in Webster's Second) is legit, and you can take the third if you can also persuade him of the validity of **upcountry** (in solid form in

Webster's Second).

wash.woman.power.house.break.out.wind.road.block.head.way.side.
long.tail.pin.grass.work.hand.gun.stock.turn.off.spring.trap.
door.stop.back.fire.flower.pot.shot.gun.hand.work.yard.arm.
chair.lady
wash.woman.power.house.break.out.wind.storm.bird.bath.house.
break.down.country.woman.wise.crack.pot.shot.gun.hand.work.
yard.arm.**chair.lady**
wash.woman.power.line.up.country.woman.wise.crack.pot.shot.gun.
hand.work.yard.arm.**chair.lady**

Note that whichever of the above routes we use, we must always circle back through some intersection. This is Abbott's principle. The following is another good example of having to go through a location twice.

crack.pot.shot.gun.**hand.work**.yard.stick.pin.grass.**work.hand.**
stand.**pipe.dream**

Here are a few more problems for the reader: lady.love to house.clean, lady.love to fly.away, gun.shot to horse.play, gun.boat to ship.yard, hand.gun to hide.away, block.head to watch.man, and hand.gun to gun.hand.

Although not intended, there are a few dead ends and impossible starts in the above maze; I was unable to create a practical maze that used only Webster's Third words. Furthermore, my computer (which was of no use in designing the maze) found that the dictionaries allow paths that I was not initially aware of. (Artificial intelligence?) One might also note that some frags are repeated in the array. I started the design with the intent of having a few streets on which the name was unchanged throughout their lengths, but was unsuccessful.

A second Logomaze, presented below, is constructed along different lines. It contains three concentric ana-gram-mar loops; the central one (intended to model a city traffic circle) contains all reversible words. I filled in radial links more or less haphazardly and let my computer tell me what was there. Many words come from below the line in Webster's Second.

Finding the following path is easy:

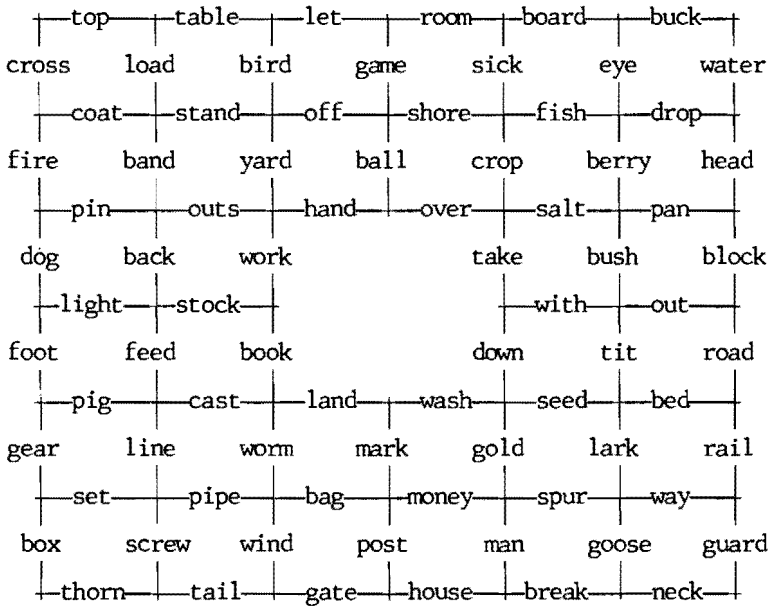
block.head.water.buck.eye.drop.**head.block**

However, finding the reverse is not:

head.block.out.with.take.over.hand.outs.pin.fire.coat.stand.off.
shore.fish.berry.bush.tit.lark.spur.money.bag.pipe.line.feed.
stock.work.hand.over.crop.sick.room.let.table.top.cross.fire.dog.
foot.gear.box.thorn.tail.gate.house.break.neck.guard.rail.road.
block.head

There are no fundamental principles involved in these logomazes. Although they bear a superficial resemblance to word meshes (see p 158 of the August 1991 **Word Ways**), the philosophy is entirely

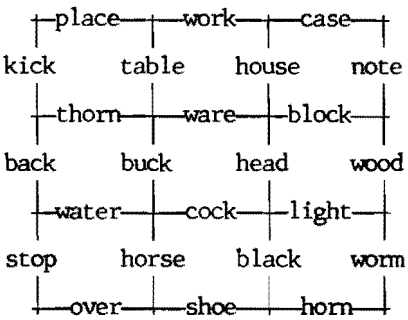
different. In meshes **all** routes (down and to the right) are by definition possible: in logomazes, frags have been chosen and placed so that travel is difficult, but not impossible.



The chains used in the above logomazes are called ana-gram-mars a word introduced by Chris McManus in the November 1990 **Word Ways.** (The idea stems from charades.) In May 1991, Ross Eckler extended this type of chain to networks, and in August 1991, he and I presented further analysis, using the term **directed word chains**. At that time, I began calling the parts of a long word **frags**. Although frags need not be words, when I developed some word meshes in November 1991, I found that for 4-4 splits, only frags that were common four-letter words were useful. In the above mazes, all frags were required to be words.

Topologically, the city-street array differs from either the orthogonal array used in meshes, or an isometric (hexagonal cell) array. The subject is quite interesting, and I plan to discuss it in a future article.

One can design Logomazes to have certain topological properties. The one below solves the "Mailman's Dilemma" - what is the shortest path he can find to travel all the streets and return to his starting point?



kick.back.water.buck.thorn.back.stop.over.shoe.black.cock.horse.shoe.
horn.worm.wood.block.head.light.wood.note.case.work.table.ware.
house.work.place.kick

The Robert Abbott style depends upon the use of reversible words such as **gunshot** and **shotgun**. Reversible eight-letter words that split into two four-letter frags were presented in the August 1991 **Word Ways**. Here are additional seven-letter, eight-letter and nine-letter words, all with uneven splits:

backout	backrun	backsaw	backset	backway	birdman	blowfly	blowout
bucksaw	burnout	castoff	cookout	dinghee	downcut	downset	downsun
drawout	dropout	everwho	fallout	fareway	firsham	foldout	foothot
footpad	gallnut	gangway	gateway	handgun	handoff	headbox	headman
headpin	headset	holdout	holeman	hoodman	kickout	kingpin	linecut
lockpin	lookout	overall	overcut	overfly	overlay	overrun	overset
packman	passout	potshot	pullout	railbed	readout	rollout	ropeman
sellout	shagrag	shipboy	shipman	shippen	shotgun	shutout	sickbed
sideway	spinout	tailpin	takeoff	takeout	tiderip	tramman	turnout
walkout	wardman	warmups	washout	wiseman	without	woodbin	woodbox
workbox	workday	workout	worktop	wornout			

breakout	carryout	chickpea	drillman	flameout	grasscut	grassman
grassnut	grateman	headsman	housebug	huntsman	lollypop	pitchout
shakeout	shootout	sidesway	sparerib	standout	stonecat	tailspin
talesmen	tallymen	throwout	wardsman	watchdog	watchout	

backflash	backhatch	backswing	birdstone	boathouse	downthrow
everwhich	filmslide	findfault	gallstone	handstone	headblock
headlight	headstamp	headstone	headwater	landreeve	outsprint
overbreak	overcarry	overcross	picktooth	pipemouth	postwoman
shipowner	sidetrack	slipcover	warmhouse	whipstock	windbreak
windstorm	wingbacks	wisewoman	woodblock	woodhorse	woodsmoke
woodstone	workbench	workhouse	workpiece	worksheet	

Scot Morris, writing in the March 1994 issue of Omni magazine, describes mazes developed by Scott Kim for play on the home computer. I have not seen any of that, but I am sure that Abbott's mazes, as well as Logomazes, can easily be adapted to the computer.