

Nactation

Introduction

The term “nactation” is an amalgamation of “Nack” (its inventor) and “action notation.” Nactation uses terms for actions (run, split, slot...) and directions (up, down...) that are commonly used to convey checker movements.

It takes only a minute or two to learn the basic symbols (Section 1). Ultimately, you can, if you like, nactate an entire game or match. However, the primary purpose of nactation is to communicate play sequences and positions that arise in the **first few moves** of the game.

Imagine that you want to ask someone about the position below, but you have no board or diagram card handy. You want to communicate the position verbally.

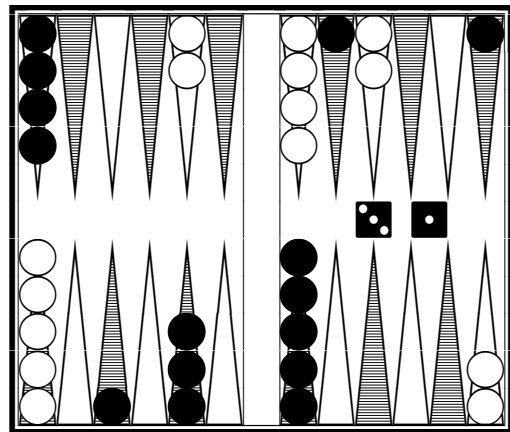
You might say: “Okay, suppose you roll an opening 43. You split with the 4 and come down with the 3. Your opponent responds with a roll of 42 and makes his 4-point. Now you roll 31; how do you play it?”

A shorter way to describe the position is:

43-split, 42-point, 31.

In written form, single-character nactation is even shorter. The caption of position #1, “43S-42P-31,” indicates that

Black opened with **43S** (43-split), White responded with **42P** (42-point), and Black, on roll, has **31** to play.



#1 43S-42P-31

Punctuate the nactation sequence as you like: instead of hyphens, you can use, for example, slashes or commas.

Position #1 is analyzed on page 60 of *Backgammon Openings*. (To learn more about this book, click on <http://www.nackbg.com/bgopreview.htm> or type it into your browser.)

For all diagrams in this presentation, *Black rolled last*. If the caption ends with only the roll (e.g., “31”), it is Black to play. If the caption ends with the roll *and* a letter/symbol (e.g., “31P”), Black has just completed his play. The text will clarify this as well.

Nactation is NOT an all-or-nothing proposition. As you learn new symbols, you can gradually substitute them in. Even learning a mere handful of symbols and continuing to use longhand (traditional notation) for all or part of the other plays will still greatly reduce your amount of writing or typing.

Section 1 will tell you most of what you need to know to use nactation. Later sections help you refine your usage (if you so choose).

Section 1: Five Basic Symbols

Nactation symbols are easy to learn. In modern backgammon, the opening roll play is almost always one of the following types:

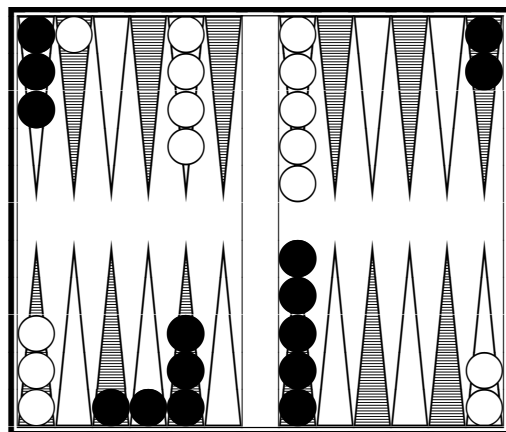
- D = down
- P = point
- R = run
- \$ = slot
- S = split

I’ll define these terms in alphabetical order.

D stands for **Down**. It refers to playing from the midpoint to the outer board, usually with two checkers.

For example, in position #2, White played **52D** (or 52-down).

In the same position (#2), Black responded with **43D** (or 43-down).



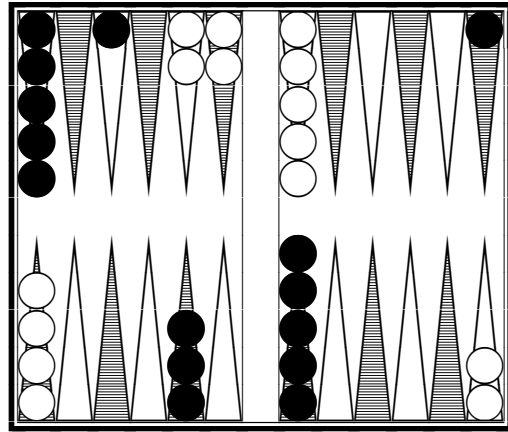
2 52D-43D

P stands for **Point**. It refers to making a point, covering a point, or pointing on a blot.

In pos. #3, White played **61P** (or 61-point).

R stands for **Run**. It refers to moving (running) a back checker to the outfield.

In the same position (#3), Black responded with **63R** (or 63-run).



3 61P-63R

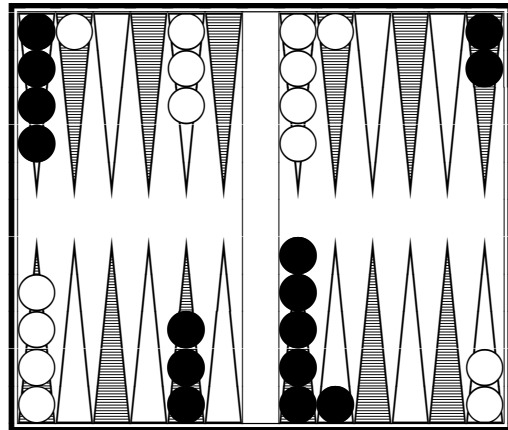
\$ stands for **Slot**. The first and second letters in “Slot” overlap to form the \$ symbol.

Traditionally, “slot” refers to playing a checker to a vacant offensive point (usually a high inner board point).

Nactation adds a meaning that refers to the entire play. You “slot” by moving a checker *down* and putting it or another checker onto a vacant offensive point.

In pos. #4, White played **21\$** (or 21-slot).

In the same position (#4), Black responded with **62\$** (or 62-slot).



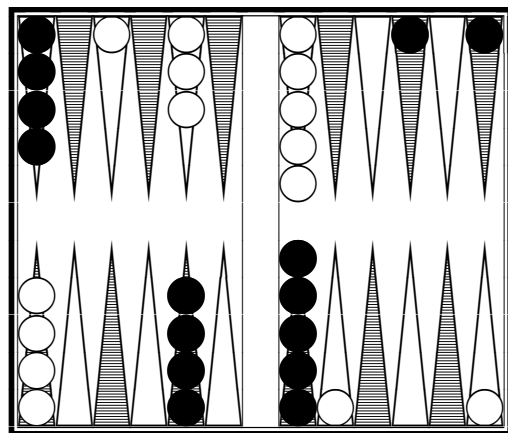
4 21\$-62\$

S means **Split**. The traditional definition is to break an anchor with the number on one die.

In the nactation system, splitting usually occurs with only half the roll. *By convention, the other half of the move is played down from the midpoint.*

In pos. #5, White played **43S** (or 43-split).

In the same position, Black responded with **52S** (or 52-split).



5 43S-52S

You are now ready to use nactation. Practice with these five letters/symbols, which will cover most situations.

Here is an excellent drill: Write down all the opening moves that you know in three columns: (1) the roll, (2) the traditional notation, and (3) the nactation letter.

For example:

<u>Roll</u>	<u>Notation</u>	<u>Nactation</u>
61	13/7, 8/7	P
32	24/21, 13/11	S
43	13/10, 13/9	D
.....		

If and when you would like to learn additional symbols, move on to section 2.

Section 2: Other Useful Symbols

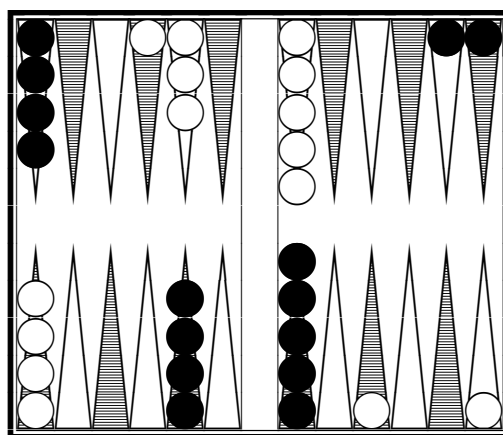
Z stands for **reverse split**. If you write an “S” backwards (or reflect it in a mirror), it resembles a “Z.”

You can use Z for a splitting play in which the *smaller* number moves a back checker and the larger number comes down.

In position #6, White played **43Z**, moving the back checker with the smaller number (the 3).

Compare with the previous position. In #5, White played 43S. In #6, she played 43Z.

In position #6, Black responded with **51S**. You *may* call this play 51Z, though it is unnecessary. Black could not legally split with the large number (the 5) nor come down with the small number (the 1).



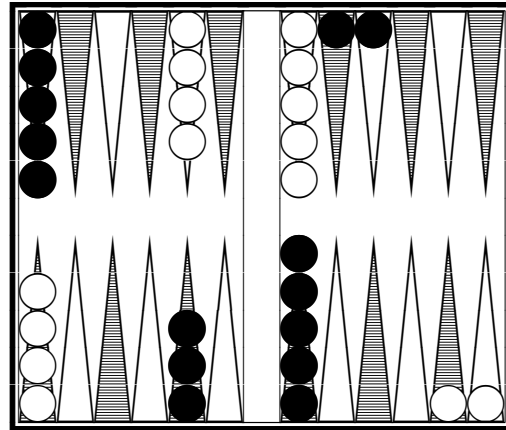
6 43Z-51S

For an early splitting play where the roll contains a 1 and/or a 5 as the larger number (e.g., Black’s plays in #5 or #6), you can use “S” unambiguously; indeed, I prefer it, because it more instantly suggests the word “Split.”

U stands for **Up** (as in moving *up* to meet the enemy forces). It refers to advancing back checker(s), but no further than the opponent's bar point (otherwise it qualifies as R, a running play).

In position #7, Black played **43U**.

The subtleties of U are discussed in more detail in Section 5, under "V."

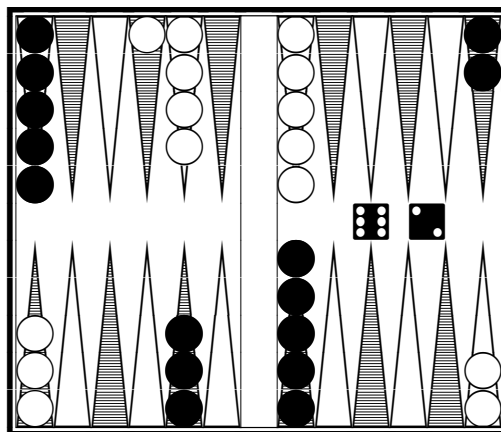


#7 51S-43U

The next three related letters (H, K and X), while not exactly essential, are some of the most communicative and useful symbols.

H stands for **Hit** (usually loose).

In position #8, White opened with 54D and Black has 62 to play. He should run one back checker, Hitting. The designation 62R is fine, although your reader might grasp **62H** more quickly.

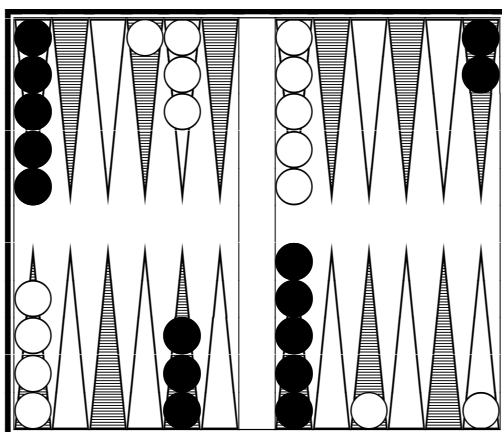


#8 54D-62

In position #9 (below), White opens with 43Z. Again, Black has 62 to play.

Nactating *this* play “62H” risks confusion, because Black has a *choice* of hits. Indeed, if White did not have an outfield blot, Black’s 62H could only mean hitting inside with the 2 and coming down with the 6. *By convention, coming down is assumed for an unstated half of an H play.*

Nevertheless, if the nactator wrote “62H” for Black’s play in #9, I would probably infer that he failed to notice the ambiguity and intended **62R**, the standout play.



#9 Black rolls 62 or 32

The value of the down-assumed convention can be seen if Black rolls 32 (in #9). Then, **32H** means to hit with the 2 and come down with the 3, as shown in #9a (small diagram; below, left).

X

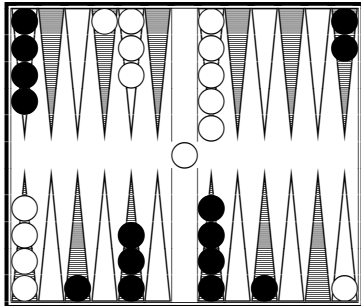
is a symbol with two strokes, representing **hit** and **split**. Such a play hits with one die and splits with the other die.

With the roll of 32 in position #9 (above), Black has a strong alternative: to hit with the 2 and split with the 3. This play, shown in #9b (below, middle) is nactated **32X**.

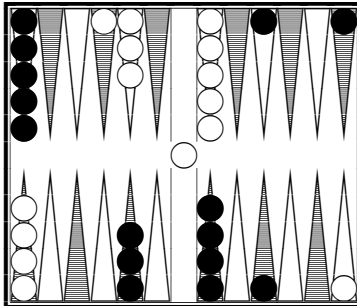
K

stands for **Kill**, and it means to hit two checkers.

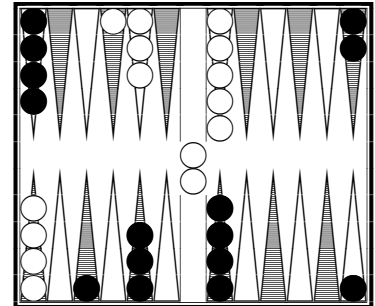
With the roll of 32 in position #9, Black's third (though inferior) choice is to hit twice. This play, shown in #9c (below, right) is nactated **32K**.



#9a 43Z-32H



#9b 43Z-32X



#9c 43Z-32K

If you worry that your readers know neither the down convention for H nor the X and K symbols, you may be tempted to add a second letter, denoting Black's plays 32HD, 32HU (or 32HS) and 32HH in #9a, 9b and 9c, respectively. Although using double (or multiple) symbols is acceptable, single-letter nactation has several advantages I will explain in a later section.

Having finished Section 2, you should be able to nactate virtually any second roll situation and most third roll situations, except for those involving doublets.

Here is a recommended drill: Set up a backgammon board with the opening position. Roll one die for yourself and one die for your imaginary opponent.

Whoever has the higher die plays the opening roll. Make what you consider to be a strong move for that player, and say the nactation letter aloud. Then roll for the other player (if you roll a doublet, ignore and reroll), make a move and announce the letter.

After two rolls (one roll for each player), start over with the opening position and repeat the procedure. If you re-encounter an opening roll or response situation, try to vary your move if there is a reasonably strong alternative. (If you are feeling bold, you can try going to a third roll in the sequence before returning to the opening position again.)

If you are not sure what letter you should use for a play, look for the relevant discussion in Section 1 or 2.

If and when you are ready to add doublets to your repertoire, move on to Section 3.

Section 3: BEACON for Doublets

Nactating doublets will spare you a lot of writing or typing. For example, “3-3: 24/21(2), 13/10(2)” is reduced to “33B.”

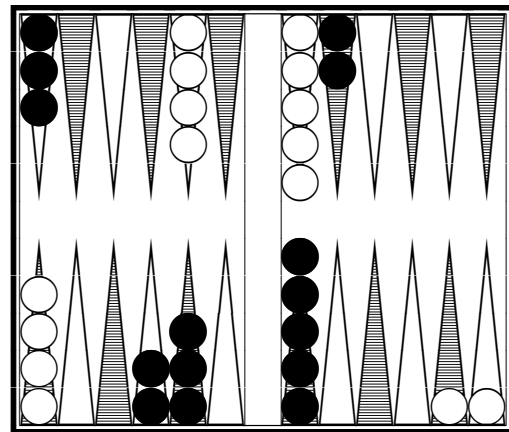
This section explains the symbols for “two-pair” doublets, where the subparts of the move are played as two separate pairs.

To help you remember these six symbols, I present them in the order of BEACON. This also ranks them from most to least commonly arising (except for N).

B stands for **Both**. It means playing Both *up* (with back checkers) and *down* (to the outer board) on the same play.

Position #10 shows **44B**. This play gives Black a big advantage right out of the starting gate.

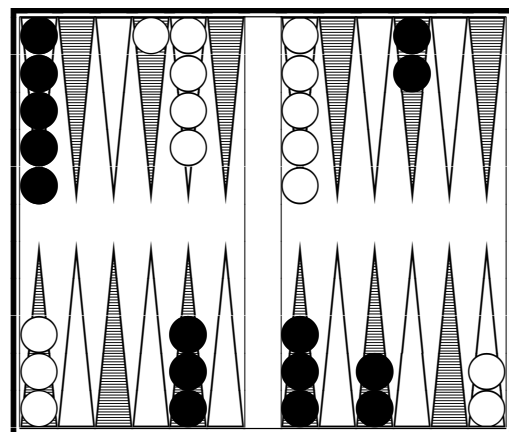
B is the most common play with double 6s, 4s and 3s in the early game.



10 51S-44B

E stands for **Each**. It means that Each inner board is allocated half the roll.

In position #11, Black has correctly played **22E** in a second roll situation.



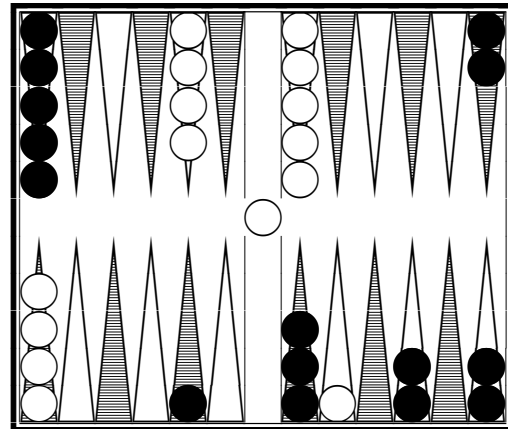
11 54D-22E

A stands for **Attack**. The entire roll is played to or within the inner board.

In position #12, Black played **55A**.

If Black had instead rolled double 3s, he could also have made two inside points (pointing on a different blot) with 33A.

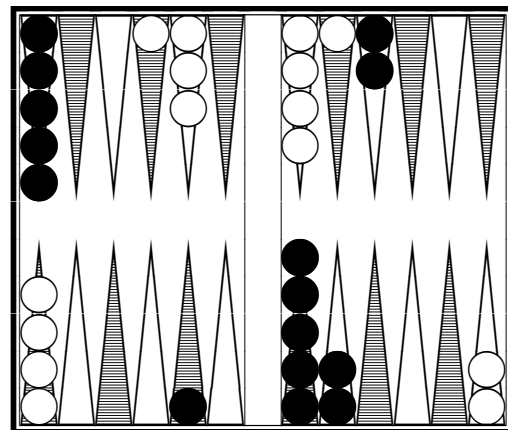
In #10 (earlier diagram), Black *could* have hit and made two inside points with 44A (instead of 44B, as played), a strong alternative.



12 54S-55A

C stands for **Cross**. The offensive half of the play Crosses the bar. The other half advances the back checkers.

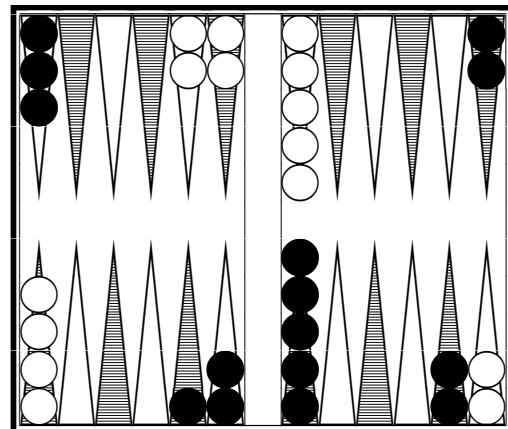
In position #13, Black played **33C**.



13 41\$-33C

O stands for **Outer**. Half of the play is made *into* a player's Outer board and half is made *out of* his Outer board.

In position #14, Black played **66O**.



14 61P-66O

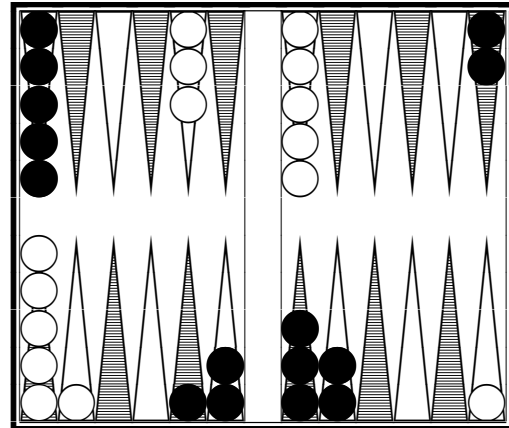
N

stands for **Near**. The move is divided between the two Near-side quadrants (from the perspective of the player making the move).

Half of the move is played to the outer board (usually from the midpoint). The other half is played entirely within the inner board.

For 22N, 33N, 44N and 55N, a player brings two checkers down and uses two inside spares to make a new point.

11N, as shown in position #15, is the only early game N play that brings no checkers down.



15 64R-11N

Congratulations! You now know the main symbols for both doublets and non-doublets.

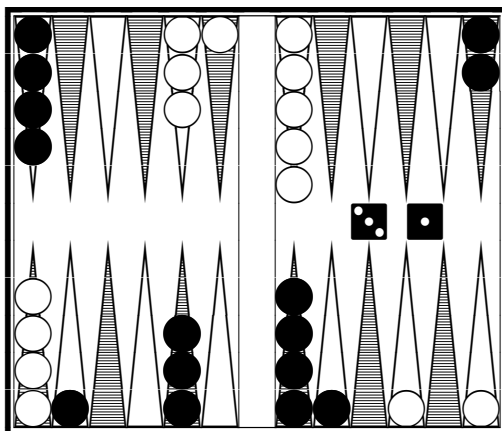
I recommend that you repeat the drill at the end of Section 2, again going as far as the second roll of the game, but include doublets. Each time you make a play, announce the nactation letter for mental reinforcement.

The next two sections will add to your arsenal for nactating third and fourth roll plays.

Section 4: BEACON for Non-doublets

It is sometimes convenient to apply the BEACON letters to *non*-doublets.

Position #16 (below) is analyzed on page 29 of *Backgammon Openings*. (To learn more about this book, click on <http://www.nackbg.com/bgopreview.htm> or type it into your browser.) Black has rolled 31.

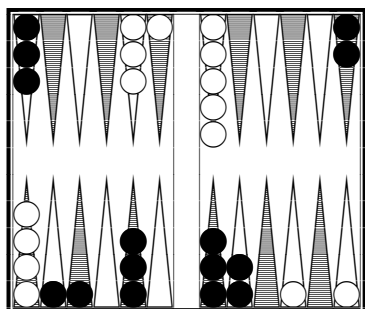


16 21\$-62Z-31

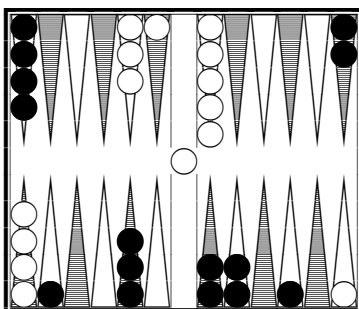
Black's best move is **31N**, dividing the roll between his Near side quadrants. Half the move is played to his outer board (3 down) and the other half within his inner board (1 covers), as shown in position #16a (below, left).

In #16, a second alternative is to play the entire roll inside, hitting and covering. This Attacking play, shown in #16b (below, middle), is **31A**. With both halves of the roll played to the inner board, Black's move in #16b is similar to his doublets move in #12.

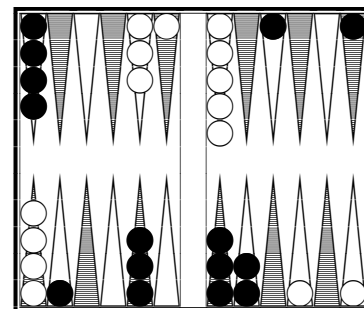
A third option for Black is to split with the 3 and cover with the 1, shown in #16c (below, right) and nactated **31E**. Black plays half of his roll in Each inner board; in that way it is similar to his move in #11.



16a 21\$-62Z-31N



16b 21\$-62Z-31A



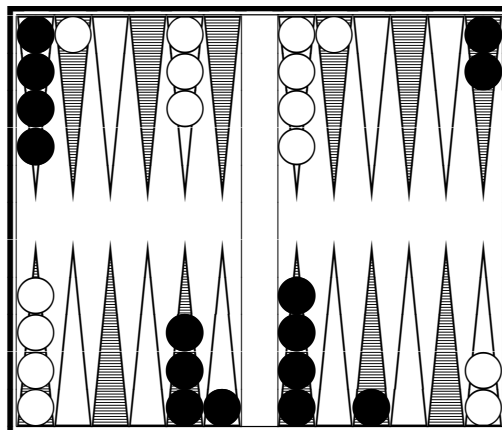
16c 21\$-62Z-31E

Allow me to clarify the use of N further. In position #17 (right), calling Black's play "62\$" would be ambiguous, because it could be confused with the 62\$ play shown in #17x (below right; a copy of position #4).

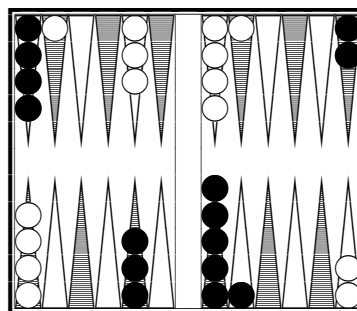
If the play in #17 is nactated **62N**, there is no ambiguity. Black has played one checker in each near-side quadrant, as explained under N (see #15).

(Another option is to invoke the double-slot symbol with 62&, but we'll explore that later.)

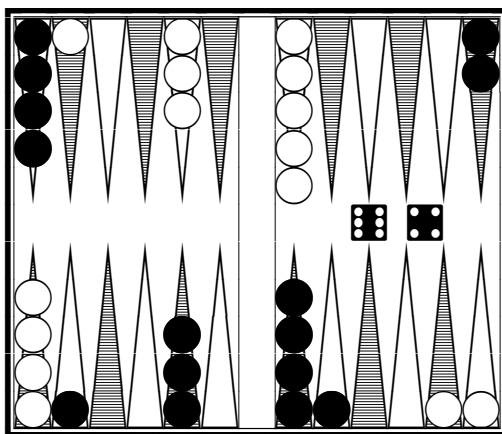
In both #17 and #17x, White played 21\$. If you think that your reader(s) might be unsure that you refer to the standard slotting play, you can nactate it 21N, though on the whole I believe 21\$ is more quickly recognized.



#17 21\$-62N



#17x 21\$-62\$



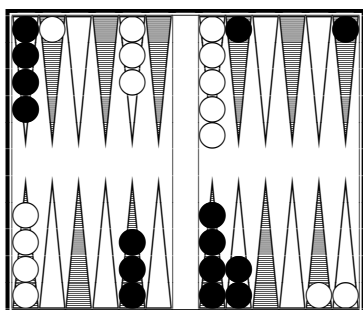
#18 21\$-21S-64

In #18 (above), Black rolled 64.

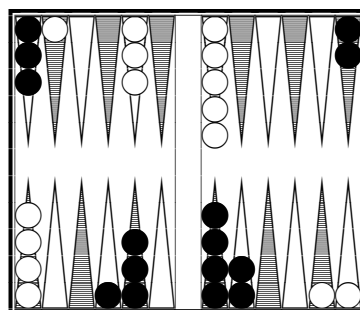
In #18a (below, left), he covered with the 6 (Crossing the bar) and split with the 4. This play is nactated **64C**. (See also #13.)

In #18b (below, right), Black covered with the 6 and brought the 4 down. He played both into and out of the Outer board, and the play is nactated **64O**. (See also #14.)

Returning to #18 (above), if Black covers with the 6 and hits loose inside with the 4 (not diagrammed), the play is nactated “64A.” Or, if he uses the entire roll to hit outside (also not diagrammed), “64R” is prudent. (64H is ambiguous; it could mean either A or R.)



18a 21\$-21S-64C



18b 21\$-21S-64O

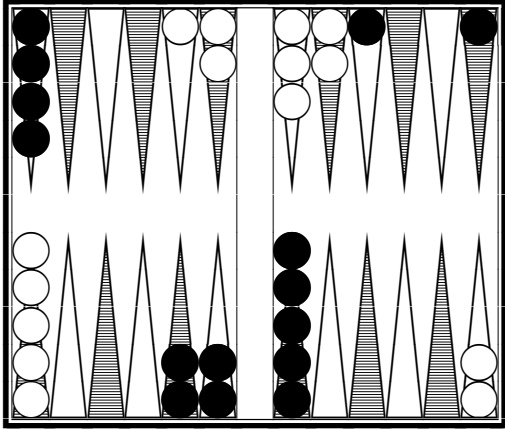
Section 5: Supplemental Letters

V

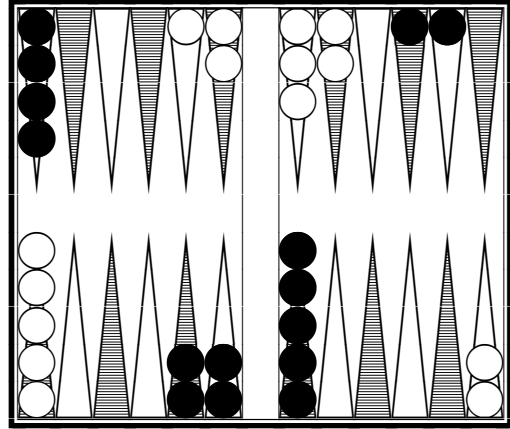
is a **Variant** form of “Up” (see U, illustrated in Section 2). Note that V follows U in the alphabet and physically resembles it.

In position #19a (below, left), Black just rolled 21, which he played by bringing up one back checker as far as possible. This move is **21U**.

In position #19b (below, right), Black played a better move, bringing up both back checkers. This move is **21V**.

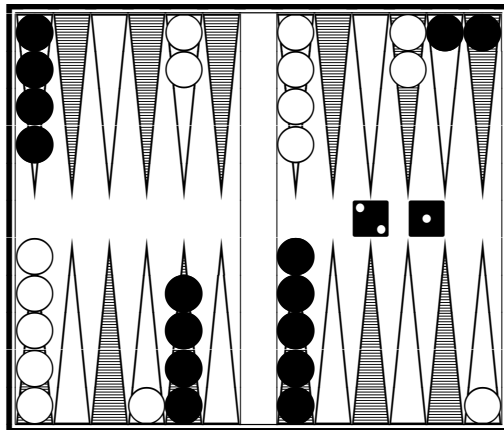


19a 61P-11N-21U



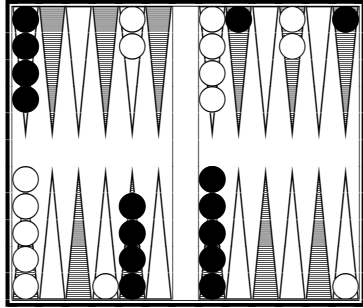
19b 61P-11N-21V

Does U always mean one checker up and V mean two checkers up? No! The examples illustrated in #20 and #21 (below) demonstrate the proper interpretation.

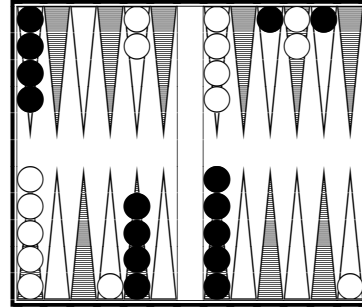


20 53P-51S-62R-21

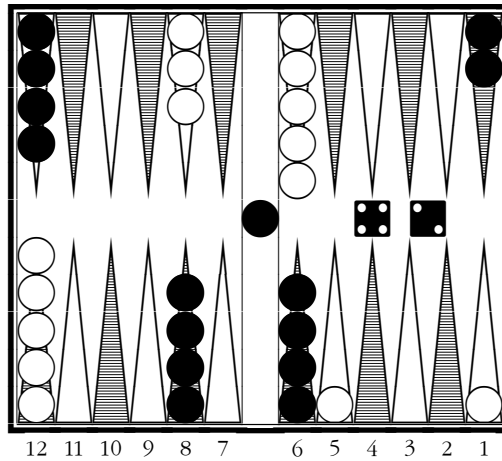
In position #20 (above), Black rolls 21. If he moves the leading back checker 3 pips, he has played **21U**, shown in #20a (below, left). However, if he moves the trailing checker 3 pips, he has played **21V**, shown in #20b (below, right). Both of these plays bring one checker up.



#20a 53P-51S-62R-21U

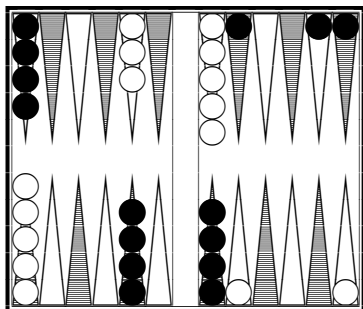


#20b 53P-51S-62R-21V

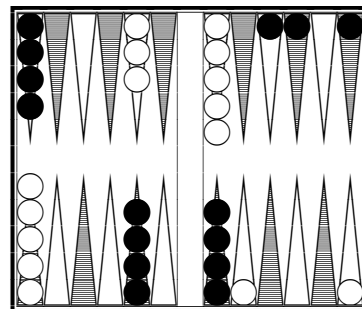


#21 51\$-31H-42

In position #21 (above), Black rolls 42. Entering with the 2 and coming up with the 4 is [42U](#), shown in #21a (below, left). Entering with the 4 and coming up with the 2 is [42V](#), shown in #21b (below, right). Both of these plays bring two checkers up.



#21a 51\$-31H-42U



#21b 51\$-31H-42V

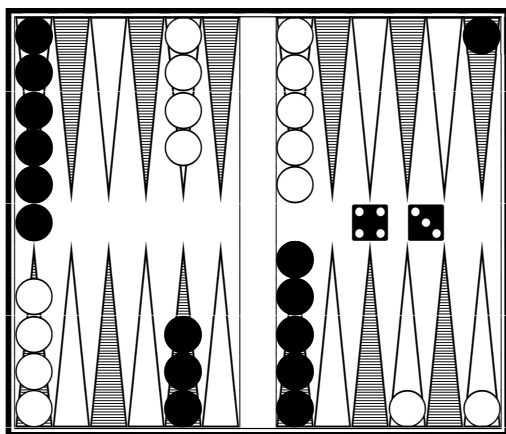
Here is a reliable way to determine whether to use U or V: If there is only one possible up play with a roll, use U. If there are two possible up plays with the roll, the play that moves the leading checker closest to home is nactated U, and the other play is V.

Later I will explain how to handle rare situations with more than two possible up plays.

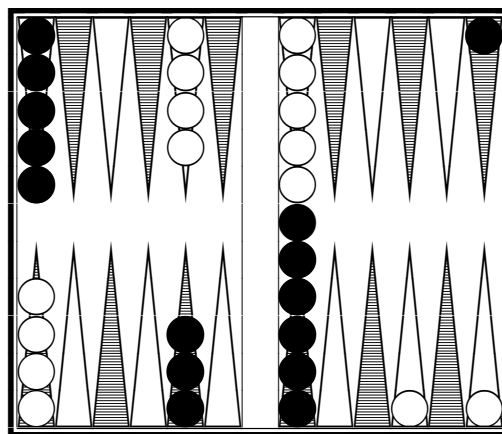
T

stands for **sTack** or **Tower**.

In position #22 (below, left), Black has rolled 43. Having escaped a checker and leading in the race, he need not be embarrassed to play **43T**, even though it merely moves a checker from one tall point onto another, as shown in #22a (below, right).



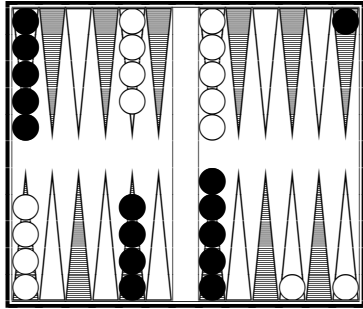
22 65R-52S-43



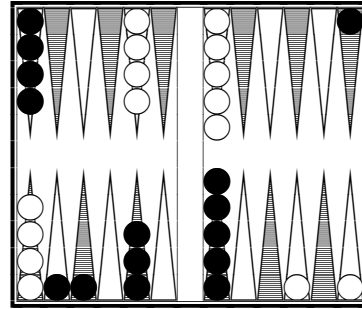
22a 65R-52S-43T

By the same token, if Black rolls 41 in #22, he should bring one checker down from the midpoint, stacking it with **41T**, as shown in #22x (below, left). This play can also be labeled 41D (using the basic symbol in Section 1.)

Also shown in #22x is **32T** (same play, but with a roll of 32 instead of 41). However, it is inadvisable to nactate *this* play 32D, which normally means to bring *two* checkers down. That could translate to the blotty move shown in #22y (below, right).



#22x 65R-52S-32T
(or 41T or 41D)

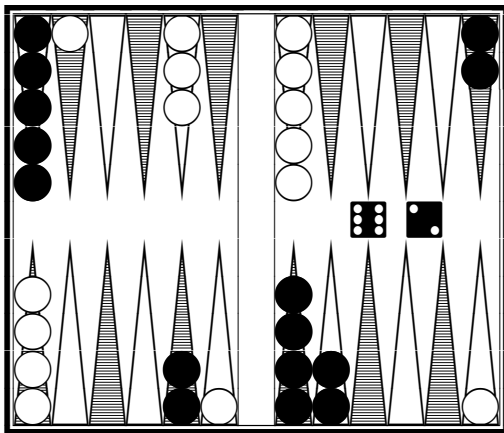


#22y 65R-52S-32D

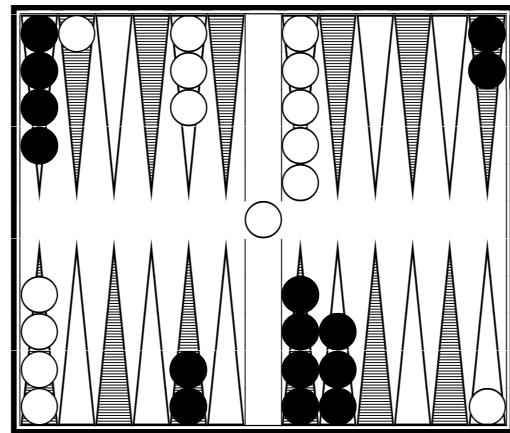


stands for **Lift**.

In position #23 (below, left), Black will obviously hit with the 6. The best play with the 2 is to lift the hitting checker, to avoid getting hit back, as shown in #23a (below, right). This play is nactated **62L**.



#23 31P-62S-62



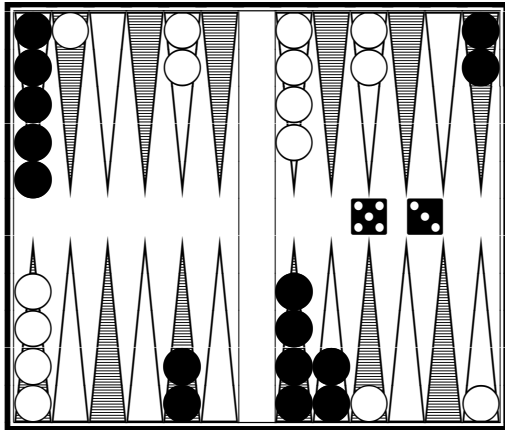
#23a 31P-62S-62L

The same play (shown in #23a) is correct with double 2s and would be nactated 22L.

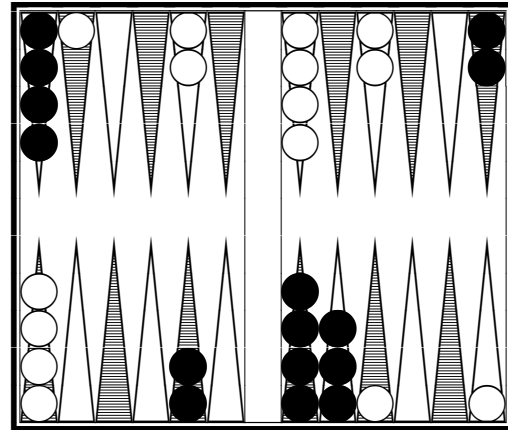
(You have now had a glimpse of the “hit assumption,” a handy tool. Assumptive nactation is discussed in the next section.)

I stands for **In**. This refers to bringing a checker into or playing it inside (within) one's own inner board.

In position #24 (below, left), Black has rolled 53. He should move one checker from his midpoint, bringing it **In** (to his inner board) with **53I**, as shown in #24a (below, right).



24 42P-31P-32S-53



24a 42P-31P-32S-53**I**

The three letters T, L and I are sometimes interchangeable. However, even when symbols *are* interchangeable, a conscientious nactator will select the one he believes his readers will most quickly grasp in the situation.

T (sTack or Tower) is distinguished from the other two because it only adds to a point already containing *three or more* checkers prior to the play. L can add to a point that starts with two (or more) checkers. I has no such restriction (though it is usually a safe play, like the other two).

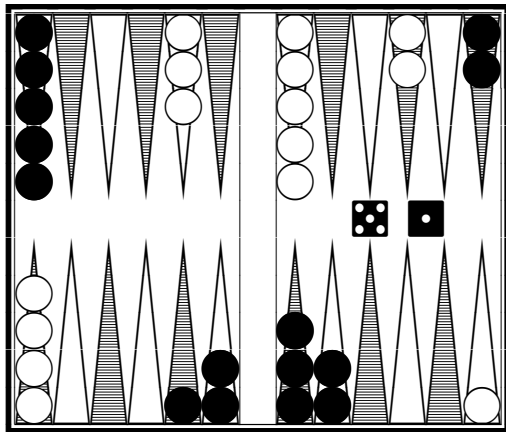
L (Lift) is distinguished because it moves a *blot*, whereas T or I can move a blot or spare (or sometimes even break a point).

I (In) is distinguished by its destination -- the inner board. By contrast, T or L can occur almost anywhere.

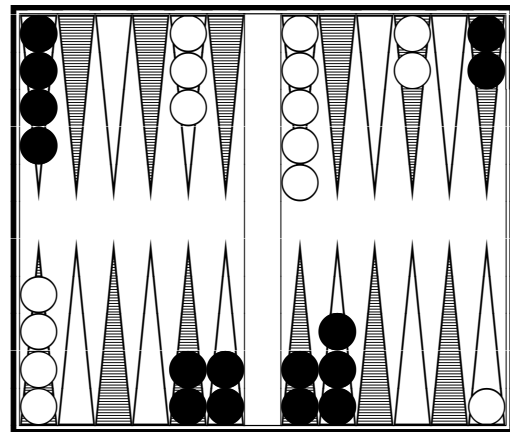
When using or interpreting nactation, think about what the terms mean in normal backgammon discussion. This will generally serve you better than mechanically following rules and guidelines.

F stands for **Float** (or shiFt, if you prefer). It refers to moving a lone spare (usually a small number of pips) from one point to another, thereby “floating” it on top of those points.

In position #25 (below, left), Black has 51 to play. He moves the obvious 5, covering his blot. With the ace, he should float his spare as shown in #25a (below, right). This play is nactated **51F**.



25 65R-11N-55P-51



25a 65R-11N-55P-51F

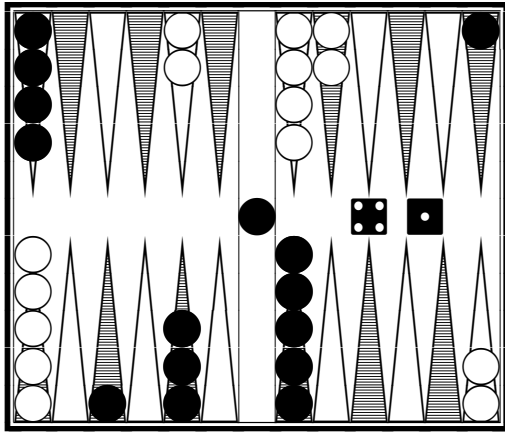
However stylish 51F (or 51I) may be, you might sometimes prefer to use 51N for the play in #25a. The art of nactation includes more than a sense of flair: it can take into account your readers’ knowledge of symbols, and their degree of experience playing and talking about backgammon positions.

Methods of distinguishing between two or more spare-floating plays will be discussed in a later section.

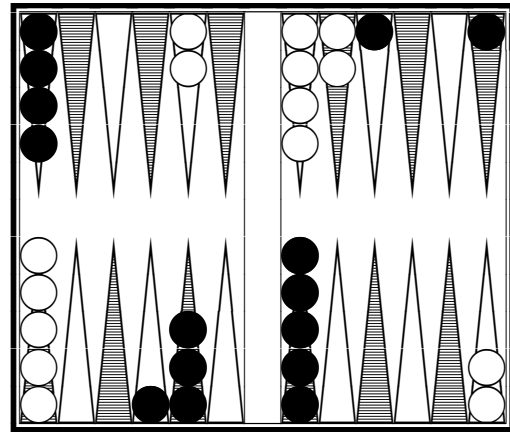
J

stands for **Jostle** (or Jiggle). It refers to sliding a blot from one triangle to another in the outfield (and usually just a pip or two).

In position #26 (below, left), Black has 41 to play. If he enters with the 4 and jostles his outfield blot with the ace as in #26a (below, right), he has played **41J**.



26 43S-31P-41



26a 43S-31P-41J

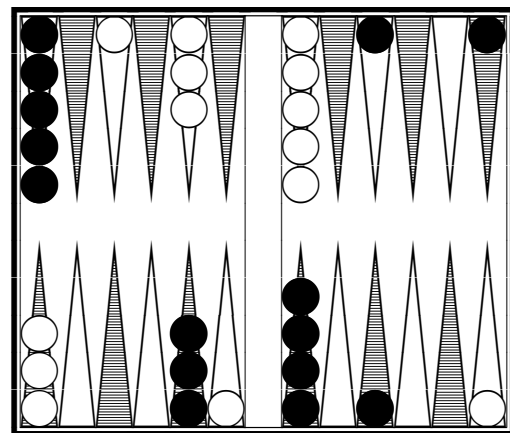
W

stands for **Wild**. It refers to a play that splits and slots on the same move (ain't that wild?).

In position #27, White opened with 63S. Black responded with **32W** (a wild play that also happens to be a strong play).

Another way to nactate this play is 32E, the halves of the roll being played in the same quadrants as Black's 31E in #16c.

E and W are largely interchangeable, though E tends to be relatively solid: it covers a point, safeties, shifts or spreads a spare with at least one of the numbers. By contrast, W tends to be very loose, starting a point in both inner boards.



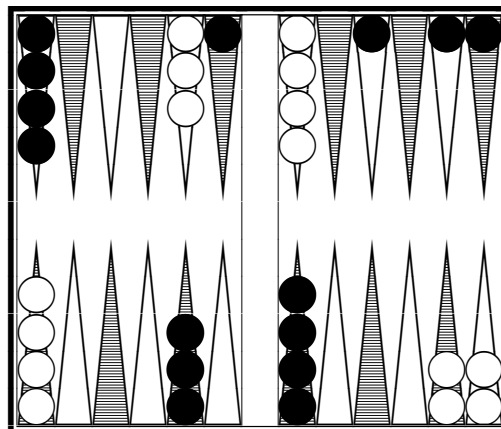
27 63S-32W

Q

means **Quadruple Split**.

“Q” refers to a play made entirely within the opponent’s inner board area (including her bar point) that leaves your own checkers on four or more triangles, and (at least) the two checkers moved finish as blots.

The Q play can arise when a player on roll has four or more checkers back.



#28 62Q (Nackgammon)

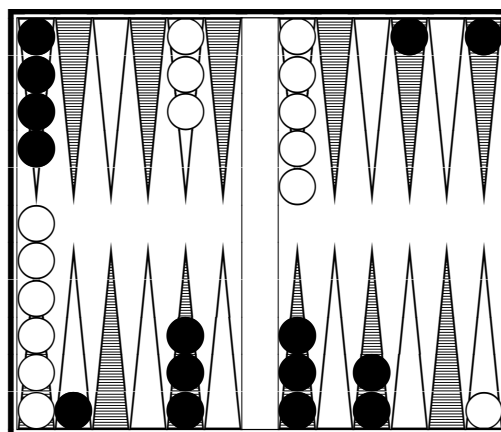
The move illustrated in #28 is opening **62Q** in Nackgammon. (For information on this variant, click on <http://www.nackbg.com/nackgammon.htm> or type it into your browser). Other strong opening plays in Nackgammon are 63Q, 52Q and 41Q.

M

stands for **Mayfair Split**.

A few decades ago, the Mayfair Bridge and Backgammon Club thrived in Manhattan.

As early as the second roll of the game, some of the top backgammon players there, in an attempt to control as much of the board as possible, played double 2s (and sometimes double 3s) by splitting, coming down, and making an inside point, as shown in position #29. This Mayfair Split is nactated **22M**.



#29 65R-22M

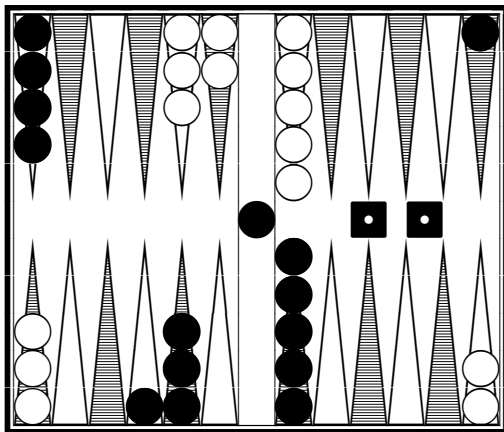
As early as the third roll of the game, an M play may be correct. The broader definition of “M” includes any play (with a doublet) that makes an inside point, moves (or enters) a back checker, and moves a checker in the outer board.

Applications for the letters G, Y and other symbols on the keyboard are still being researched, and some current letters may be re-evaluated. Suggestions are welcome.

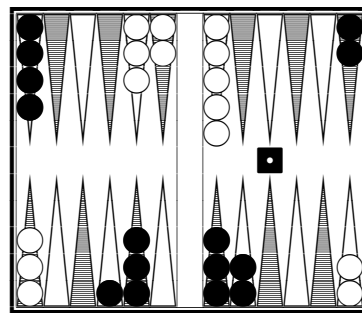
Section 6: Assumptive Nactation

It may seem remarkable that any early game play, including doublets, can be nactated with a single letter while side-stepping ambiguity, but so far I have found it to be true, as long as the backgammon skill level of the reader is intermediate (or stronger). One valuable trick is the use of common sense assumptions.

In position #30 (below, left), three of Black's aces are obvious: entering is forced, and he should (of course) make a powerful inside point. Assume, therefore, that the reader will know to play these three aces, reaching the position shown in #30x (below, right).

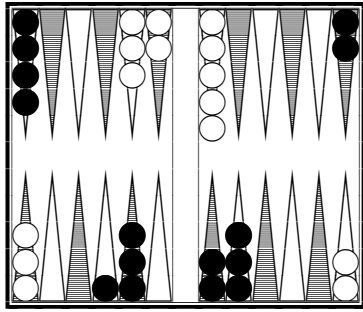


30 64S-33P-11

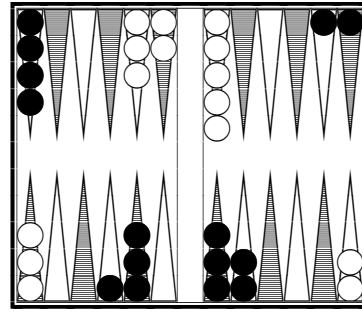


30x One ace to play

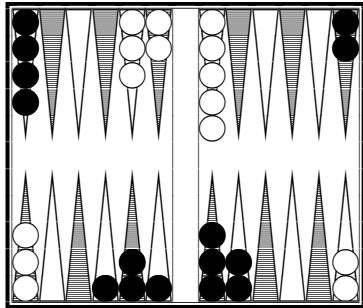
Oddly enough, Black would be better off stopping with the three aces played in #30x. However, the rules require him to play a fourth ace. Black's four plausible options, in descending order of strength, are shown in the small diagrams below.



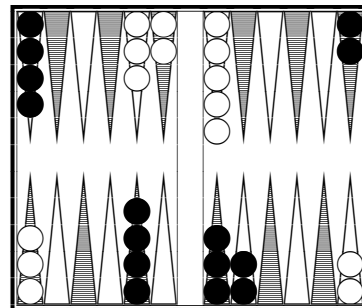
30a 64S-33P-11F



30b 64S-33P-11S



30c 64S-33P-11\$

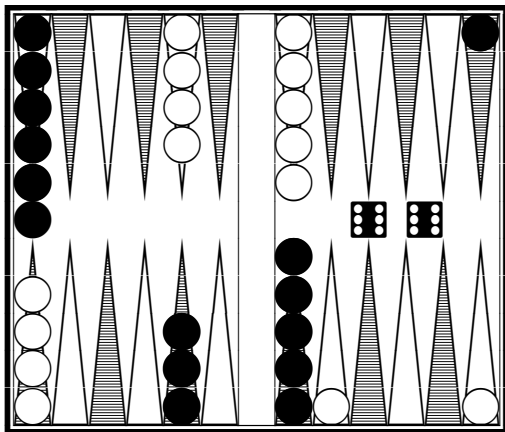


30d 64S-33P-11L

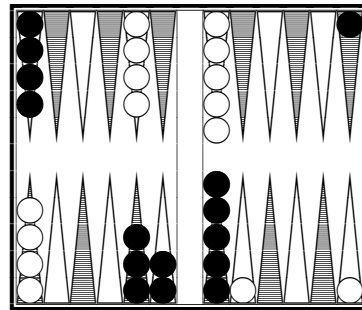
Other nactations are possible (even without resorting to lower-case letters or numerals, which will be addressed in later sections). For example, the inside/floating ace in #30a can be I (instead of F). The stacking/lifting ace in #30d can be T (instead of L).

In position #31 (below, left), Black has double 6s to play.

All reasonable candidate plays involve Black bringing down two checkers, as shown in the small diagram #31x (below, right). That part of the play can be assumed.



#31 65R-54S-66

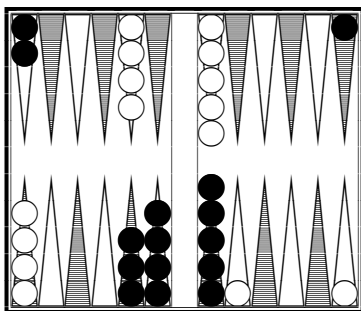


#31x Two 6s to play

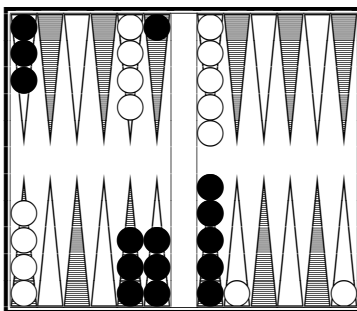
If Black brings the other two checkers down as well, as in #31a (below, left), the play can be designated **66D**. (That works even if the letter is applied to the entire play.)

Black's play in #31b (below, middle) may be nactated S, Z or B, if you want a symbol that combines the third and fourth 6. However, if Black runs out with the third 6, there is only one reasonable fourth 6 (coming down); therefore, I prefer the nactation **66R**. Indeed, if the reader Runs out with the 6 first, he will quickly realize there is only one reasonable way to play the other three 6s.

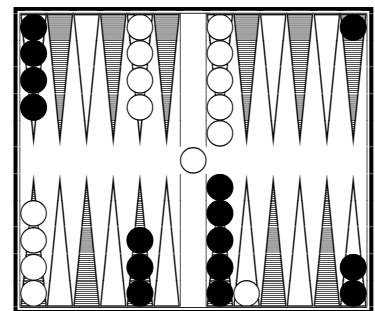
If Black Points on the ace point, as shown in #31c (below, right), **66P** works well.



#31a 65R-54S-66D



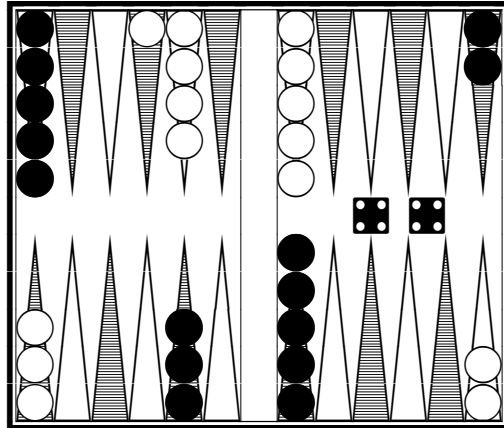
#31b 65R-54S-66R



#31c 65R-54S-66P

By the way, any of the three plays with double 6s illustrated above might be best, depending on the match score.

It is common to assume a *hit* for part of the roll. In most cases, you can nactate the other half of a hitting play without fear of ambiguity.

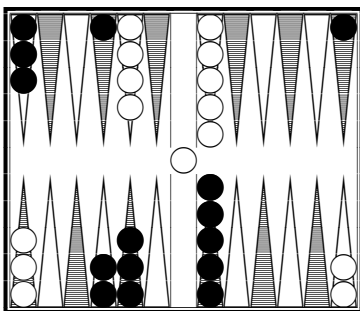


32 54D-44

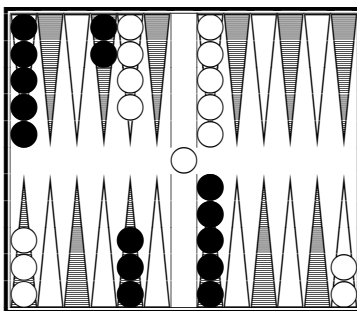
Position #32 (above) is a valid example. It is logical for Black to hit the blot in the outfield with two of his 4s. With his other two 4s, he can play Down, as shown in #32a (below, left), nactated **44D**.

Black might also consider Running out with both checkers, as shown in #32b (below, middle). This play is **44R** regardless of whether Black is able to hit.

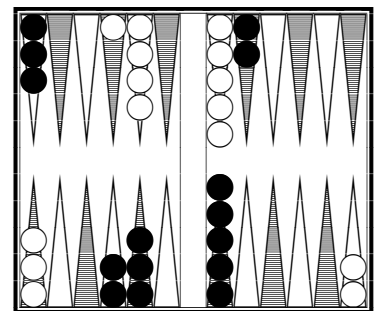
The solid alternative shown in #32c (below, right) does not hit. It is nactated **44B**, utilizing one of the BEACON letters from Section 3.



32a 54D-44D



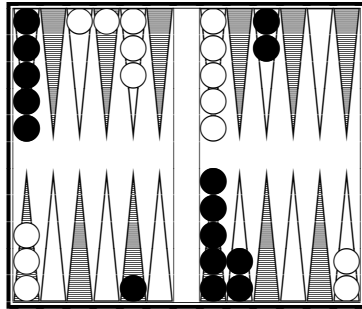
32b 54D-44R



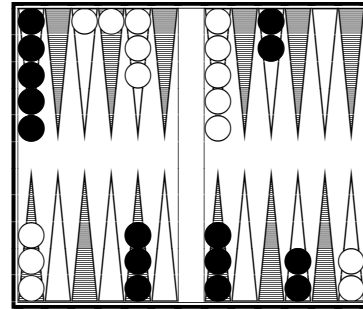
32c 54D-44B

Even when a hitting play is *not* best, it is okay to apply the hitting assumption.

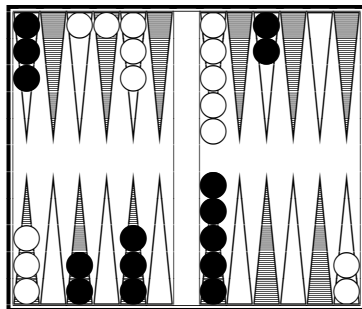
By way of explanation, positions #33a, #33b, #33c and #33d each illustrate a competitive choice for Black at some match score in response to White's opening 43D:



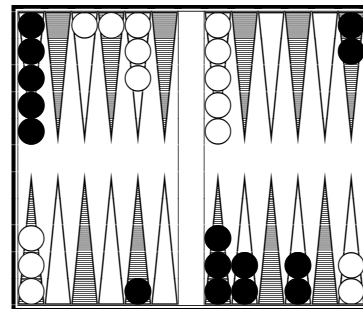
33a 43D-33C



33b 43D-33E

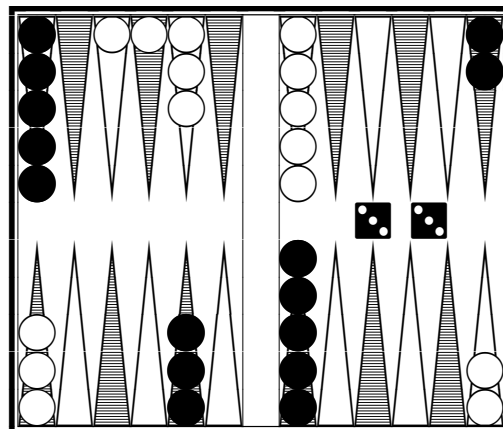


33c 43D-33B



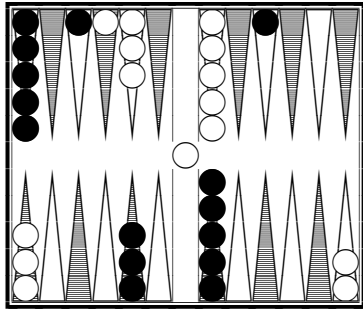
33d 43D-33A

The above moves are nactated with four of the BEACON symbols (from Section 3). But Black has additional choices. Let's back up to the position before he made his play:

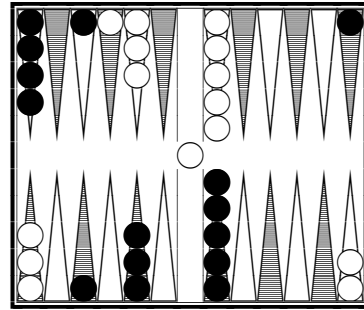


33 43D-33

Black may also hit in the outfield. To nactate these plays, assume the loose hit and use a symbol only for the fourth 3. In #33e (below, left), Black comes up with **33U**, and in #33f (below, right), Black comes down with **33D**.



33e 43D-33U



33f 43D-33D

Unless one is hitting, it is natural to play doublets in point-advancing pairs (moves for which there are already well-defined symbols). Therefore, the assumption of a loose hit is efficient for purposes of being able to define a wider variety of candidate moves.

Incidentally, Snowie evaluates the two plays illustrated above (#33e and #33f) as best and second best (for money) by a significant margin. However, according to *rollouts*, these plays are fourth and fifth best — clearly worse than the best play shown in #33a. (They are reasonable plays only at double match point.)

Depending upon the level of feedback and enthusiasm, other sections might be added later to this tutorial for lower-case letters, numerals, other symbols, an annactated game, shorthand equity nactation, and a glossary of symbols.

* * * * *