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HONG KONG - Coming August, in the Venetian resort in Macau, the third annual World Series of Mahjong will take place - a competition where there will be a million US dollar at stake. In this second part: strategy of Zung Jung Mahjong.

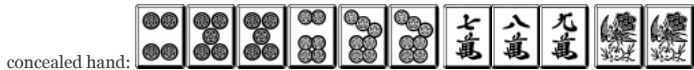
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Zung Jung is, in a nutshell, all about the classic decision between going for the quick, cheap win, or aiming for a slower hand which is more valuable. Typically, a dealt hand offers many widely different rewards - and here the magnitude of the different rewards make a *big* difference. In this chapter, we take a detailed look at this aspect.

The 'expected value' method

Zung Jung gives the player the freedom of choice between the big hand and the quick win. Going purely for speed is not a winning strategy in the long run, nor is blindly attempting big hands all the time. The strategy is, to quote Millington, "to play the hand to the best of its potential", and to decide one's goal according to the materials in one's hand.

Some (especially the Japanese) suggest using the "expected value" to guide one's decision. The expected value is calculated by multiplying the value of the winning hand by the probability of its completing following hand for example:



Now, one can discard  to call for   for a 5-point "All Sequences" hand, or one can discard  to call for the gap , which scores "All Sequences" plus "Two Identical Sequences".

(We ignore the option of discarding  to call for two-pair  , which yields a chicken hand and is inferior.) To evaluate the two options, we let P be the probability of winning with the gap

  two-way call to be 2P. Comparing the two: (tripled income according to Zung Jung Tournament Payoff Scheme)

strategy		prob. of win	income	expected value
discard 	call 	2P	15	30P
discard 	call 	P	45	45P

Hence arriving at the conclusion that, it is more advantageous to discard  in order to score "Two Identical Sequences".

Upon a rough look, the "expected value" method looks like a reasonable theory. While I of course agree with the employment of mathematics towards analyze mahjong strategy, *the method we common a big oversight, namely that it has failed to consider the risk of losing points if one doesn't win.* When one sacrifices some of his chances of winning while attempting a bigger hand, one also gives the opponent a greater chance of winning, thereby increasing one's own risk of losing points. To correctly evaluate the risks of pattern-building, it is necessary to include such risk in the calculations.

Let us denote the probability of failing to win with the   call by Q (Q=1-2P); the chance of failing to win with the gap  call will be Q+P. To simplify calculations, let us ignore the chance of winning, and assume that if one doesn't win, an opponent will. If all three opponents are going for chicken hands, then one will lose only 1 point when he loses:

strategy		prob. of win	income	expected value
discard 	call 	2P	+15	30P-Q
		Q	-1	
discard 	call 	P	+45	44P-Q
		Q+P	-1	

We can see that, the 1 point for the chicken hand has little impact on the calculations; one should still go for "Two Identical Sequences" for the greatest gain. But if all three opponents are calling for 40-point hands, the picture becomes very different. We can assume that every player suffers the same chance of discarding to the win, and hence assume an average loss of 40 points irrespective of the payoff scheme:

strategy		prob. of win	income	expected value
discard 	call 	2P	+15	30P-40Q
		Q	-40	
discard 	call 	P	+45	5P-40Q
		Q+P	-40	

When there is the threat of big hands from the opponents, it becomes very risky to sacrifice one's speed and chance of winning to go for more points. In this example, attempting "Two Identical Sequences" has a lower expected value than the easier win.

While the "expected value" method is a good concept, it is incorrect to do the calculations by considering only one's hand and ignoring the risk of losing points to an opponent's win. To get a useful answer from the opponents must be included in the calculations. But in practice, the three opponents will have different speeds, different hand values, and different chances of winning, and above all, their hands can only be inferred through skill and experience. Therefore, *to make a good estimate to represent the risk of losing is a very deep question, and this is where the appeal of pattern-building mahjong* layer of depth can only be brought about by the careful balance of pattern values (with the abolishment of the basic points). A minimum requirement cannot bring this about (and in fact, a high one kills makes the players go for the quickest hand allowed by it.

Through this point, we can also see why *all those systems with "basic points" or with excessive lucky inflations will end up becoming "speed mahjong"*. For example, if we add just 10 basic points to the calculation:

strategy		prob. of win	income	expected value
discard		2P	+45	90P-10Q
		Q	-10	
discard		P	+75	65P-10Q
		Q+P	-10	

The scale is tipped towards the quick win even against opponents' chicken hands. Even raising "Two Identical Sequences" to 15 points is not enough to tip it back. And that is against *known* chicken han has lucky inflations or easy valuable hands, the looming threat of unpredictable big losses will also push everyone towards quick wins.

On a side note, in the above example, because the upper seat has previously discarded , it is likely that should he draw another , it will be an unwanted tile for him, and he will just discard likely that someone is holding a pair (because if he does, he might have pong it earlier). Thus, one can expect that the chance of appearing is somewhat higher than that of , and in the calculations. This is another interesting aspect of mahjong as an interactive game.

The basic strategy of pattern-building mahjong

Pattern-building mahjong rewards the player for the beauty and difficulty of his hand. Naturally, the player feels inclined to make bigger hands in order to win more points. However, in modern mahjong hand is the only one which scores. A common mistake of the novice is to aim too high and forget that he has to complete his hand; a big hand can score only if it is completed before an opponent wins and hand ends in a draw. Chance plays its part in mahjong, and no hand is guaranteed to win. To make the decision of whether or not to attempt a big hand, one should know the theories on hand speed (such as "number of tiles from calling") and estimate his chances. The "expected value" method can be employed, but as explained in the previous section, the opponents' threats should be included in the calculation; purpose, the skill of seeing through the opponents' hands is needed.

Zung Jung has been designed to encourage pattern-building. The pattern values have been set so that, in the long run, one who goes only for speed and ignores opportunities for higher scores will lose to fully utilizes his opportunities. If the three opponents are all going for small hands, that is the time to exploit any high-scoring potentials in one's hand; one needs not follow the crowd and play for speed doesn't make that big a difference between winning and losing a small hand. The main risk of pattern-building is not that one is sacrificing his chances of winning a small hand, but rather, it is that one chances to the opponents to win a big hand (if they are trying for one). Concerning this point, the balance of the pattern values is very important: on one hand efforts towards difficult patterns should be rewarded, yet on the other hand, common and easy hands should not be valued too high. This is because, if one can get high scores often while merely playing for speed, no one will want to risk sacrifice pattern-building. Frankly speaking, this is where many other scoring systems fail: any undeserved rewards will render the game into speed mahjong.

As explained above, when faced with the decision of whether to go for a big hand or not, in addition to looking at the materials in one's hand, it is important to consider the threats from the opponents. One can accurately infer whether the opponents are building big hands, and if they are, observe their progress: whether they are calling, or how far they are from calling. If one believes he can beat the opponent hand, one should use the opportunity they granted to deal them a heavy blow, but otherwise one should consider the quick win as a way out.

Playing the Zung Jung patterns

Pattern-building in Zung Jung often surrounds the patterns in five core series: "Pure/Mix One-Suit", "All Triplets", "Three Similar Sequences", "Nine-Tile Straight", and "Pure/Mixed Lesser Terminals" give ample opportunities for attempting as well as good scores. Zung Jung scoring is additive, so the pattern-building surrounds the big patterns, unlike faan-counting New Style or Modern Japanese (which is especially advantageous to make hands which combine several small patterns; in this way Zung Jung feels similar to Hong Kong Old Style (but here we have more different types of big patterns). This is of Zung Jung; with a clearer distinction between big and small hands, pattern-building becomes a sharper interactive battle.

Small patterns do have their place, though. They are easy to make and easy to win with; they do add up, unlike the chicken hand which gives virtually no income. The 10-point patterns, "Value Honor" and "Sequence" are quite effective, especially the latter which can easily combine with the Trivial patterns for a 15~25 point hand.

Materials for attempting other higher-scoring patterns are rare, but when the opportunity presents itself, one of course should not miss the chance to reap a big score. Also, 80-point class combination 1 Mixed Lesser Terminals + Three Similar Sequences, Mixed One-Suit + Nine-Tile Straight, and Mixed One-Suit + All Triplets are very powerful.

Concerning defense, one needs to understand the payoff scheme: the discarder has to pay for the part of the score which is over 30 points. For a 35~40 point hand, he has to pay 45~60 points, which is if one has a big hand himself, he can sometimes afford to take some risks. But one who discards to a 60-point hand has to pay 120, and to a 80-point hand 180; if one doesn't discard the losing tile, one loses if another player discards, or 80 points if the winner self-draws - which is still a lot less than 180. Against an opponent's really big hand, one usually should not risk dangerous discards. The very best one can sometimes tell with certainty which tile the opponent is calling for; in such case, one should not discard the losing tile of course, regardless of relative hand values. But there is an exception: the "tactical Classical mahjong is effective in Zung Jung. If an opponent is threatening with a big hand, and one's own hand is hopeless, one may want to deliberately discard to let another opponent win a small hand nightmare immediately.

Hand speed (a sample hand)

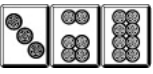
To help some readers understand the concept of "number of tiles from calling", let's look at a sample hand:



If a player is dealt this hand (which looks quite good), what should his plans be?

The first thing is to count the tiles. At a glance, there are three 40-point class patterns within reasonable reach: 2-3-4 Three Similar Sequences, 3-4-5 Three Similar Sequences, and Nine-Tile Straight in one of these patterns, the hand already has six of the nine required tiles, and in 2-2-2 distribution too. (2-2-2 is better than 3-2-1 because partial sets enable one to claim discards.) 4-5-6 Three Similar Sequences possible, but is yet another tile further away; we need not consider it until we draw some 6's.

The second thing is to consider how far the hand is from calling for each of these patterns. For 2-3-4 Three Similar Sequences the hand needs precisely ; it is 4 tiles from winning from calling. For 3-4-5 Three Similar Sequences the hand needs , plus a circle (or) to complete a sequence, and also a pair of eyes. So the hand is actually 4 tiles

Nine-Tile Straight, the hand needs  , plus a bamboo or a character to complete a sequence, and also a pair of eyes. The hand is again 4 tiles from calling.

We realize that the hand is faster towards 2-3-4 Three Similar Sequences than the other patterns. (The key is that it can use the  pair as eyes.) Thus, at this point, that pattern should be our prima should not hesitate to chi any  to advance our hand towards that goal. On the other hand, the other patterns are possible alternatives; depending on the tiles we will draw, those

may materialize instead of the 2-3-4. If we then draw a  or  , for example, we should of course keep it to expand our future options. However, at this point we should not hastily chi either of

because doing so would actually lock down our options **without** advancing the hand. (In particular, we should not chi  even if we are just playing for the speed win!) And if we get a discarded  carefully chi  and not  .

Some food for thought to end the chapter: if we now draw another  , what should we play? ...

footnotes:
1 : 石田滋, 「麻雀の勝ち方」, 1984, 大泉書店, p.42~45