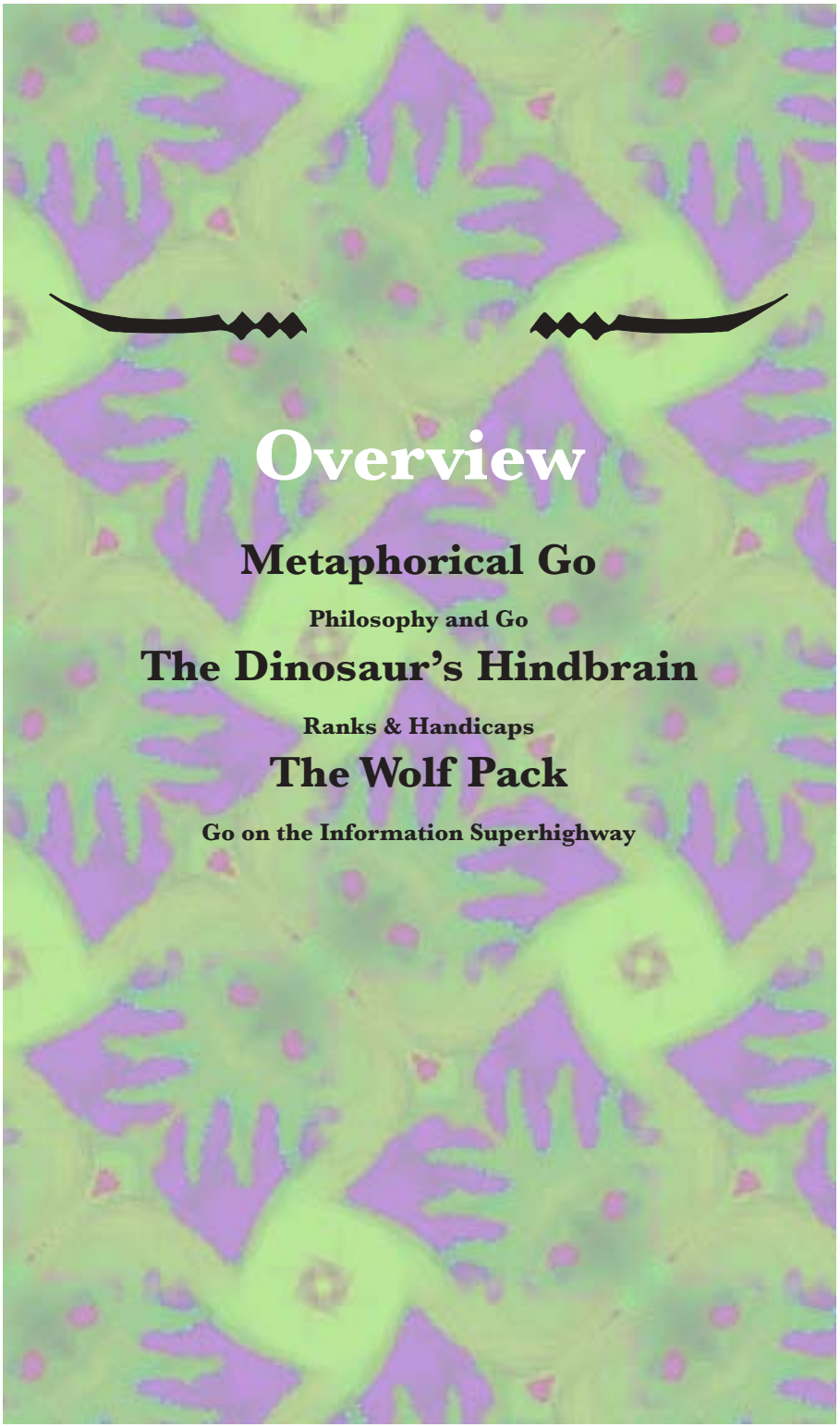

Overview

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This section (Overview) comes from the book
EZ-GO — Oriental Strategy in a Nutshell
by Bruce and Sue Wilcox.
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This book is out of print in paper but a PDF version has been created. It can be ordered for US$25 or 20 Euro or 15 pounds sterling for CD including shipping & handling. Foreign currency must be in cash (no checks). Paypal also accepted.

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Metaphorical Go

The sheriff stepped out onto the dusty street. The sun burned directly overhead, blinding him for a second. Facing the sheriff, the outlaw tensed his hands over his holsters. The outlaw began to reach for his gun, and, with a loud crack, it was all over. The outlaw, in disbelief, fell to the ground.

Bobby Fisher hunched over the chess board, gazing sightlessly at the hand-carved wooden pieces. One could almost see the wheels turning in his head, looking at sequence after sequence, trying to find a way to save his beleaguered king. There! Was that it? His mind reviewed the sequence of moves he had just imagined. If Black plays here, then White plays here, then Black plays here, checkmate. Yes! Swiftly he moved his pawn ahead one square. Check, and mate in two. The game was his.

These scenes are Western metaphors. We tend to imagine confrontations as one-on-one, hero versus villain, relatively simple encounters. In each confrontation there is some climactic moment when the hero takes sudden skillful action and immediately vanquishes the opponent. These metaphors govern our actions in real life. In business we seek a monopoly— the total destruction of our competitors. In war we try to crush

our enemy in a big battle, being "firstest with the mostest." In science we initiate the big crash project, aiming for the breakthrough that magically solves some problem. In diplomacy we adopt "saber rattling" confrontation. In life we think hard work at a single goal and commitment to the company way will yield the good life. Competitive, fast, direct, short-term, extreme, one-shot. These are adjectives that describe our Western style.

But the world has become complex, cutthroat, and interdependent. Our Western metaphors haven't been working as well as they used to. Many people have begun seeking answers from the Orient, be it divining the future with the *I Ching*, avoiding the material world through the philosophy of Zen Buddhism, trying to understand nature and human behavior with *The Way of the Tao*, or applying Chinese military strategy from the *Art of War*.

Go (*Baduck* in Korea, *We'i Ch'i* in China, *Igo* in Japan) is a four-thousand-year-old game. Before that, it was a means of divination. Go is the Orient's metaphor for war and business and a Rorschach test for judging character. The CEO of Nintendo plays Go to "size-up" competitors before negotiating a contract. Mao Tse-tung compared his guerrilla war approach in taking over China to the game of We'i Ch'i. What happens when their metaphor meets our metaphor? The quagmire of Vietnam. Oriental dominance in consumer electronics and memory chips. The acquisition in bulk of major American companies and real estate. That is why an editorial in the New York Times admonished then President Bush to learn Go before going to Japan.

Cooperative, competitive, eternal, subtle, balanced, flavorful. These are adjectives that describe Oriental style and the style of Go. Go is a positional game, a game of delicate balance and coordination of planning and execution. Miura Yasuyuki, head of Japan Airlines Development Company and Nikko Hotels wrote: *The study of Go can reveal how the Japanese businessman thinks and develops business strategy.* Go is a valuable metaphor.

Just as Go is a metaphor for teaching other lessons, other metaphors can be used to teach Go. I use metaphors freely throughout this book. When I teach Go to children, I use a metaphor to convey the goal of Go. They get the point right away. You will too. Pretend you are a five-year-old. (I don't teach them any younger lest they try to eat the stones themselves.)

The Goal of Go: Imagine a freshly-baked square pan of brownies. Smell the aroma wafting through the air toward your nose. See the chocolate icing spread over the top. Savor how it would taste in your mouth. Now, imagine you have a friend with you. Naturally you want all of the brownie for yourself. However, your mom is standing nearby, so you know you can't get away with it. Instead you are supposed to cut the brownie fairly, in half. Will you? Or will you wiggle the blade to get a slightly bigger half? Or cut the brownie so that the best frosted bits are on your side? In other words, you will want to get something better than your friend, but not enough so that Mom will notice and take the brownie away from you and divide it evenly.

Christie and Kian Wilcox with their brownie Go board.

OK. Back to being an adult. The Go board is like the brownie. You want it all. But you don't deserve it all and you won't get it all. If you try to get it all, you will surely get less than you could otherwise. It's the nature of the game. So you must aim to share. Cooperate, but be greedy. Aim for a little bit more than your opponent. Something almost unnoticeable. That is your goal.

The Play of Go: Go is a two-player game between Black and White. The Go board is typically a 19x19 square grid, but it can be smaller, like the 9x9 board shown below. The board will be entirely empty at the start. You place stones of your color, one per turn, on any empty intersection, trying to enclose regions of empty intersections touched only by your stones. These regions are *territory*. Black always plays first. Diagram 1 shows Black and White alternating six moves each on a 9x9 board. Small boards are good for beginners because the games end quickly, providing fast feedback. The numbers on the stones indicate the order in which they were played. Once played, stones don't move from their original spot. Whoever controls more territory when the game ends, even if only slightly more, wins.

In Diagram 1, Black has built a complete wall around ten points of shaded territory in the bottom left corner. (Shading is used to show territories in our diagrams, but exists only in your imagination in a real game.) Diagonal stones are an acceptable solid boundary. White has claimed eighteen points, but there are three holes in White's boundary. By the end of the game, White will need to fill them in. Currently in Diagram 1, neither player has yet grabbed any territory in the lower right corner.

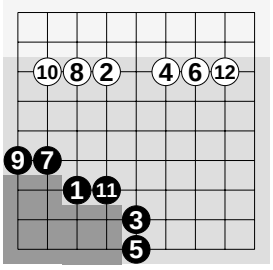

Diagram 1

Expect that the two of you, Black and White, will divide the board into several small territories, some yours and some your opponent's. Your job is to be slightly more efficient than your opponent, to get slightly bigger territories or slightly more territories. Placing your stones is like alternately carving the brownie with your friend. For each move/slice you make, your opponent/friend makes a move. Expect to share most of the board/brownie and subtly try for that extra point/frosting.

In the Beginning…

The board is empty. It stares at you like an empty canvas, daring you to touch it with your paintbrush. Wherever you touch, the paint will stick permanently, so you fear even getting close. Where should you start? Dare you spoil the center? Will you dribble here and there, make a bold splash across the canvas, or try to recreate the Mona Lisa in a small corner?

Sketching: It is a common mistake of the fledgling artist to take a single spot of canvas and flesh out every last detail of the picture there, neglecting the canvas as a whole. In Go, the novice Black player often begins by placing stones in a line, then using that line to solidly surround a piece of territory. This is as wrong in Go as it is in painting. Instead you must paint your stones in broad brush strokes — sketch a rough outline of your intended picture and fill in the technical details later.

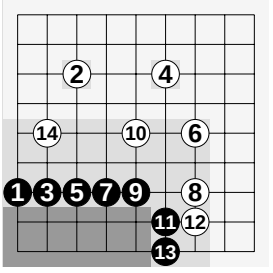

Diagram 2

In Diagram 2, Black seals the corner doggedly while White sketches out the rest of the board. White's claim of forty-four points has weaknesses, but even if Black can destroy half of White's claims, White will still have far more than Black's claim of ten points.

Of course, in Go, you have a competing artist, so your intended outline is likely to become distorted beyond recognition. That's OK. Pretend you are going to create an abstract masterpiece using your opponent as a random influence on your brush.

Corners then Sides: Traditional military or chess theory says take the center first to dominate the landscape. That's great in a game where the pieces move. In Go, however, you rope off regions without moving pieces. Traditional Go theory dictates playing in the corners first, taking advantage of the two intersecting board edges as preexisting fences around your territory. After taking the corners in a full size 19x19 game, players then spread out to the adjoining sides, where a single board edge can still be used profitably. The center acts like a big theater in the round; anyone can get in easily, so no one can really control it. It is not used in the opening. Early moves there would allow the opponent to gain much more potential territory along the sides.

Corner Moves: Go, like chess, has evolved a large number of standard opening sequences that start both players off on roughly equal footing. These moves are called *joseki*. In chess the openings use the entire board, but in Go they cover only part of the board. It is possible to pick joseki that interact badly with other stones on the board, even though locally they are perfect. As a beginner, you don't have to master any joseki right now. The following simplistic approach will work for your next hundred games or so.

Opening play is usually on *a*, *b*, or *c* of Diagram 3 or on one of the marked intersections. The lettered intersections are on the third and/or fourth line from both edges. You will learn about the value of playing on these lines shortly. The marked intersections, being on the third or fourth line from only one edge, represent uncommon play. They aim more for control of the corresponding side and less for control of the corner.

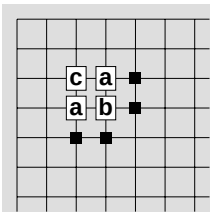

Diagram 3

A corner move on a symmetrically positioned intersection (*b* or *c*) does not immediately require further attack or defense of the corner. If your first corner move is not on a symmetrically positioned intersection (not on *b* or *c* of Diagram 3), your opponent will usually quickly respond, since your corner is not secure.

In Diagrams 4, 5, and 6, either player would like to take one of the indicated points. *a* is the most popular and common point, followed by *b*, *c*, and *d*. In Diagrams 4 and 5, *a* is more common because it is harder to enclose (therefore it is safer). In Diagram 6, *a* is safer because it is closer to the corner than the other choices and closer to the edge than Black's stone. This may allow it to "steal" some of the corner territory.

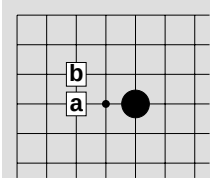

Diagram 4

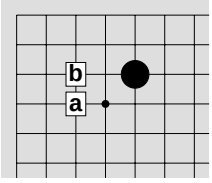

Diagram 5

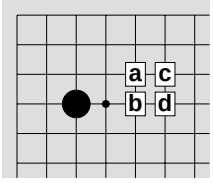

Diagram 6

Side Extensions: Once you have built your fortress in the corner, it is time to spread out and pacify adjoining unclaimed countryside along the side. This takes advantage of your nearby corner strength and allows you to use your corner stone(s) to fortify the area quickly when that becomes necessary. When extending along the sides, look for the widest unclaimed area between your stone and an opponent's stone. Don't play in this area unless it is at least three points wide. (To measure the width, count the empty perpendicular lines between the stones.) Anything smaller than three lines wide is unimportant until the endgame.

The first sixteen unnumbered moves in Diagram 7 were joseki. The players then began staking out the unclaimed sides. Black 17 claimed the largest one (nine lines wide prior to Black 17). White 18 took the next largest (seven lines). Black 19 took the next (six lines). White 20 took the last unclaimed side (three lines).

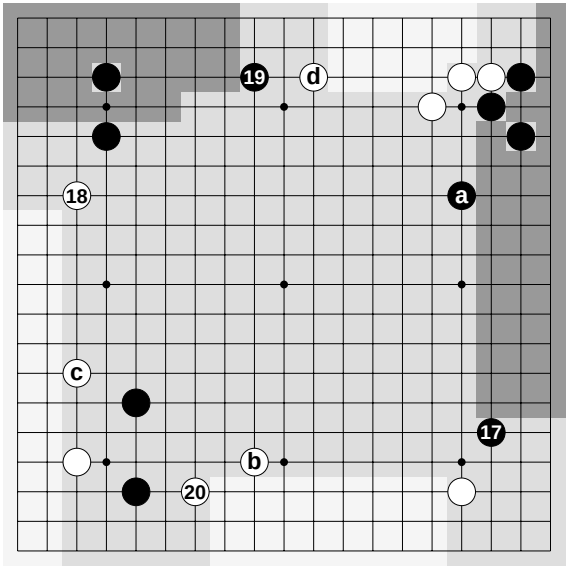

Diagram 7

All remaining unclaimed side areas between Black and White are fewer than three lines wide. Wide areas between stones of the same color (e.g., between *a* and Black 17) are potential territory for that color. Playing in those areas is a midgame activity, not an opening game one. These twenty stones completed the opening. The corners and sides are now sketched. Black claims 63; White claims 62.

Third and Fourth Lines: To take advantage of the edges, I've already said to begin sketching in the corners, then expand to the sides. But where should you play? The third and fourth lines from the edge represent the most efficient play, so they are equivalently good places to play. This is where corner moves were played in Diagram 3, or side extension moves were played in Diagram 7.

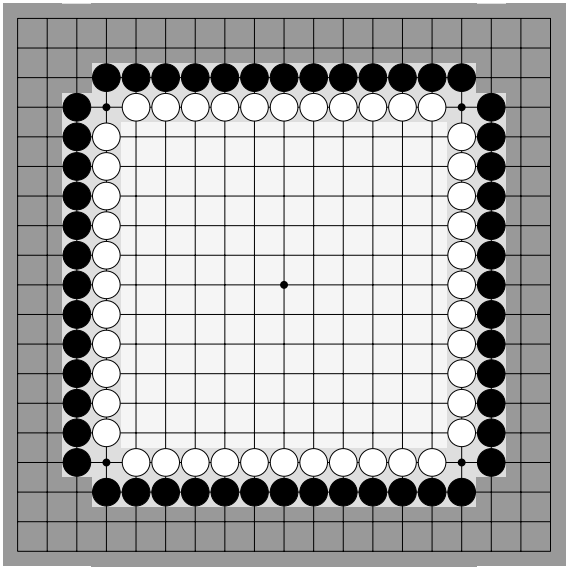
Diagram 8

Diagram 8 suggests why this is so. Black uses 52 stones on the third line to control the outer territory (140 empty points). That's about 2.7 points per stone played. White uses 44 stones on the fourth line to surround the inner

territory (121 empty points). That's exactly 2.75 points per stone. The point-per-stone ratios are similar on the third and fourth lines.

All other lines diminish in value rapidly. On the second line the point-per-stone ratio is 1.125 points per stone, while on the fifth line it is 2.25 points per stone. On the first line it's 0 points per stone. You don't play there to make territory.

Balance Third and Fourth Lines: As you stake your claims to the biggest areas first, you must consider the impact of the third and fourth line at each move. The third line is the line of territory. A third-line stone makes secure territory efficiently but can be threatened from above. If you put all your stones on the third line, you are vulnerable to being threatened from above and kept out of the center.

The fourth line is good for fighting. Being close to the center, a fourth-line stone lends a supporting hand throughout the board but is weak at holding territory it bounds. If you put all your stones on the fourth line, you make territories that are vulnerable to invasion, so you may later lose much of what you have claimed.

You should seek balance, a mixture of third and fourth line moves overall. If one end of your area is on the third line, try to put the other end on the fourth line. In politics this might seem wishy-washy, but politicians don't want to lock themselves into extreme positions. Neither should you.

In Diagram 7, Black 17 on the third line balances from the fourth-line stone (*a*) above it. White 20 balances the nearby fourth-line stone *b*. White 18 is questionable, extending as it does from a third-line stone (*c*). White intends to undercut the fourth-line Black stone above it, but White's left side position is too low. As you will learn, Black 19 dare not extend to the fourth line, lest it be undermined by a move extending from White's nearby third line stone (*d*).

After Six Days…

War broke out. Despite all the unclaimed land remaining, the inhabitants of paradise became covetous of the others' areas and tried to steal them.

"The battle is joined" in the midgame. Both players have to strengthen or expand their positions, create new territories in the center, attack their opponent's positions, and defend against attacks on their own positions — all at the same time!

The midgame normally begins when all opening moves are exhausted (all corner and edge areas are claimed). However, if you conclude you are falling behind during the opening, you must declare war. You must invade your opponent's areas before they become secure. That means parachuting a few stones into danger behind enemy lines. Thus the midgame can start even before the opening is complete.

Maybe you will launch a full-scale invasion, putting all your might into it. Or maybe those brave few will become sacrifices to distract the enemy from your real intentions.

In Diagram 9, Black must decide between continuing the opening sketching phase by playing at *a* or launching the midgame by invading White's area at *b*. Is Black falling behind? No. If you compare the size of the shaded areas for Black and White, it should be obvious that Black has a lot more claimed territory than White. Black should continue the opening phase.

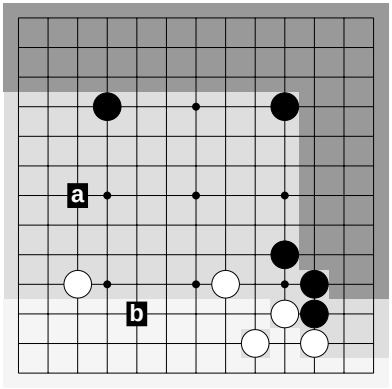

Diagram 9

In Diagram 10, Black did continue to sketch, but played a conservative choice (the marked stone). Now White must decide to continue the opening with *a* or launch the midgame by invading with *b*. Is White falling behind? Yes. White is far behind in claimed areas and will still be so even after playing *a*. White will want to invade Black's area with something like *b* and hope for the best.

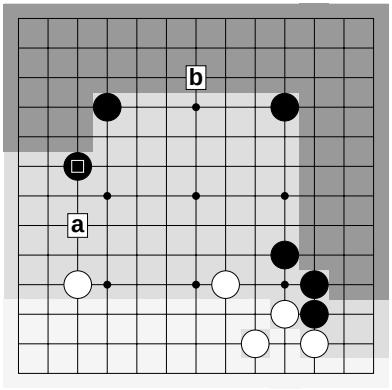

Diagram 10

If White did play at *a*, the opening game would be over. The midgame would start anyway. Black could choose to secure Black's claims, perhaps playing at *b*. *b* is a good move whether or not White has played *a*. Or Black could invade White's claims. Since Black's claims are bigger than White's, Black would prefer to defend, rather than attack. The game is all about the size of things. Stake out the biggest areas first. Attack or defend the biggest areas first. Being first somewhere is huge advantage. There is even a Go technical word for it, *sente*. To have sente is to be able to play first elsewhere. A move is sente if it forces a reply, leaving you with total freedom.

Stones can be captured and removed from the board (described in detail in the next chapter) and the midgame is filled with the threat of capture. Capture is not the purpose of the game, however, making the most territory is. Capture can lead to making or losing territory, so both players must constantly bear in mind the safety of the stone about to be played, as well as stones previously played.

By the end of the midgame, all areas of the board have been surrounded by one of the players or the players have jointly ruined areas with their mutual presence. All major collections of stones have either been made immune to capture or have suffered death. The game, however, is far from over.

Ending Not with a Bang ...

Lots of quibbling and last minute recriminations over missed opportunities characterize the endgame. Of course the game might end with a bang, if someone is forced to resign in the midgame due to the death of a large group of stones. But that isn't the rule. Usually the game continues past the midgame into the endgame. The endgame is your last chance to eke out a win in a close contest.

In Diagram 11, Black and White have clearly divided the board into Black, White, and neutral (unowned) areas, but there are still a few gaps in each player's territorial boundaries. As it stands, Black has twenty-seven points and so does White. The game is tied; it is Black's turn.

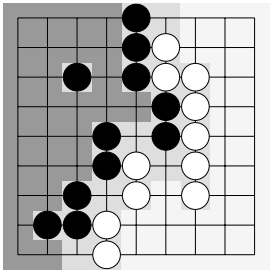

Diagram 11

A good endgame magician can work miracles of sleight of hand, moving territory boundaries slightly this way and that. Since you only have to win by a single point, each dent you can create in an enemy boundary and each bulge in your own boundary provides the potential for victory.

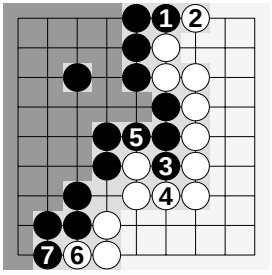

Diagram 12

In Diagram 12, Black puts stones on White's boundary gaps. Each time Black does so, White loses the possibility of territory next to Black's stone. Since each Black move threatens to steal more, White blocks each thrust. When Black runs out of places to thrust into, Black 5 prevents a White thrust, and Black 7 stops another.

After the moves of Diagram 12, all boundaries are sealed. Black has twenty six points; White has twenty five. Black has converted the tie into a win by quibbling over boundaries. The game is not over yet. There is still one place left to play between both sides' positions, though neither player can create new territory by playing there. When you learn about capture, you will learn that such moves can also make a difference (White may have to fill inside White's territory to protect stones from capture). But even if White needs no defense, White cannot win. It is too late.

At last the game approaches its finale. In Western culture it is the dramatic scene, the falling villain or the checkmate. In Oriental culture it is a moment of meditation and peace, the completion of a joint work of art. When every move you can make would cost you points (e.g., filling in your own territory), you say *I pass* (you make no move), disturbing the board no more. If your opponent does likewise, you have both agreed the game is over — and it is. If your opponent doesn't pass, then clearly somebody is out of touch with reality. You can play again if you wish, or pass again. Eventually both of you will pass in succession, ending the game. All that remains then is to count the points and see who won. If you have at least one point more, you won.

Philosophy and Go

Go evolved out of a method of divination used in China. Black and White stones were cast on a board covered with astrological and geomantic symbols. We talk a lot in this book about violence, killing, and capture — the aggressive, competitive side of Go. This is a part of the picture and the easiest way to memorably explain what the game is about and how to play it. But there is more to Go than fighting — Go has a spiritual side, a reflection of Oriental philosophy. To concentrate only on the concepts easily understood in the Western tradition would not make a good Go player. To become a strong player, you need qualities that seem unexpected at first, but which can have repercussions in everyday life.

Duality: In Oriental philosophy, everything in the world can be seen as the dynamic interplay of opposite qualities: Yin and Yang, female and male, receiving and giving, rest and activity, faith and rationality. Within every individual are *both* opposing qualities. The West tends to think of opposites as opposing, whereas the East thinks of opposites as cooperating parts of the same whole.

The dynamic tension between opposites is called *balance*. While in specific situations expressing only one side of oneself can be valuable, overall one should strive for balanced expressions of both parts. Awareness that both qualities coexist allows you to look in any specific situation to see which quality is most appropriate. You need not be locked in to only one side. For example, the Western mindset is heavily biased in favor of action and often neglects the value of its polar opposite, inactivity or resting. Allowing situations to "ripen" and delegating action to others come less easily to us. In Go, a weaker player is tempted to make overplays, feeling that the only way to get the opponent to make a mistake is to take action to force the opponent to pick badly. Stronger players are content to be passive and play a non-threatening peaceful move. They know full well that if you give a weaker player the initiative, the weaker player will usually pick a bad move without any help.

Radical Change: If opposites coexist in all things, then the ability to change radically also exists. While locked in deadly combat you feel aggressive Yang energy. Once the group is alive or dead, you can repose in Yin and admire the beauty of it. Yang becomes Yin. A group is alive in one moment and dead in the next— transformation from one extreme to its opposite.

Oriental philosophy and mysticism are steeped in the concept of the coexistence of opposites. Hard/Soft, Cooperation/Competition, Love/Hate, Life/Death, Success/Failure. This simultaneous is/not-is quality is often baffling to the Western mind, but it is a key to action in the Orient. It is not that the two qualities lie at either end of a straight line. It is more like the two qualities are next to each other on a circle. You can either take the long way

around from one to the other, or you can simply move from one to the adjacent other directly. Assume both qualities exist in a situation or a person and look for the most efficient lever to move something or someone across the thin boundary. A small action can result in what seems like an impossibly large transformation. Enemies become friends, the weak defeat the strong, the dead become alive.

For example, success may be the opposite of failure, but they are not far apart. Being successful does not place a company at a great distance from failure. Behind each failure lurks an unseen opportunity for success and behind each success lurks an unseen risk of failure. Businesses can fail rapidly *because* they are successful. Fast growth, however much desired, is dangerous. Whenever your company doubles its size in short order, all of your established systems will be stressed beyond endurance and you need new systems. If you don't watch out for this — poof! Or consider this: if you accomplish what you set out to do, you are successful. Then what? You are in danger of drifting ever after until you find a new vision.

Cyclical Change: Once you admit change occurs from one extreme to the other, then you must also admit that it can change back again. Not just *can* change back again, but *will* change back again. A quality builds toward its zenith and then collapses back into its opposite. Over time this change may occur in predictable cycles. The bleak cold of winter will give way to the rebirth of spring, which becomes the sweltering heat of summer, which becomes the dying of fall, which becomes the bleak cold of winter again. The economy grows and then enters recession. Success leads to failure which leads to success. It is not surprising; it is inevitable. If you are aware of this cyclic nature, you can prepare for the next turn of the wheel. This cycle can take only a few seconds, like the cycle controlling your heartbeat, or it can last for centuries.

Centralization has been a trend for centuries. In earliest times people organized themselves into small groups, each of which was self-sufficient. Over time this gave way to tribes. As agriculture overtook hunting, interdependence led to forming larger aggregations of organization— the city-states. Industrialization created broader dependencies for raw materials and markets to sell in, and nations replaced city-states. Continuing this trend is the European Common Market, a sort of mega-nation. And yet, this trend may not be a linear growth resulting in the eventual unification of all of Earth. It may instead be merely a vast cycle.

There are signs that centralization has peaked and decentralization is the next wave. Businesses are breaking into smaller pieces, returning to their core strengths. Nations like the Soviet Union and Yugoslavia are fragmenting into pieces. Quebec threatens to secede from Canada. Hawaii wants to leave the United States. Libertarianism, the politics of individual responsibility, is becoming popular. As technology makes global interconnection probable, it also reduces the need for local connectivity. The pendulum is either swinging away from centralization on a slow march back to small units, or is about to cross the narrow threshold and radically change our political universe. What took thousands of years to evolve may suddenly transform within a century. People unaware of the cyclical nature of development will find themselves surprised at the changes and their rapidity.

Preparation: Preparing is a matter of expecting things to change, but it is not *just* a matter of expecting things to change. The current phase of the cycle has embedded in it the seeds of the next phase. When a phase transition comes upon you suddenly, consider what advantages can be salvaged from the preceding phase.

In winter buds are dormant but preparing to bloom. In the failure of one business can come the inspiration for a successful new business. For example, 3M's famous PostIt Notes product stems from a failed glue that wouldn't stick enough. Instead of viewing it as a failure for what they wanted, it was considered in a new light and led to a successful product. Another example might be that if you gain lots of experience in bankruptcy court due to your failed business, you could form a new business based on advising others in similar situations. In Go, if you suddenly realize your stones will be captured, instead of despairing, look to see how that might be a blessing in disguise, how you might sacrifice them gladly while your opponent is thoroughly distracted with success.

Surrender: If you feel that only actions (control) can save you, you neglect the value of external support. Surrender, the opposite of control, is an often overlooked technique. In Go, surrender can enable you to let go of a group that is in trouble and look for other ways to use your moves. Outside of Go, if the world is not submitting to your will, if you just cannot bludgeon it into going your way, then consider doing something else. Have faith that there is a direction you should be moving in and prepare for the moment when that direction becomes clear. This is a good policy on the Go board and in life.

Surrender is not the same as resignation. This becomes abundantly clear when you consider your choice of resigning the game versus reconsidering your position and options. It is better to treat the setback of losing a group as an opportunity to change your approach to the game instead of an all-time damning event.

It is an act of faith to see the universe as supportive. I like to operate on the belief that the universe is on my side. The positive attitude can enhance more than just your game. If you stop developing defeatist paranoia, you gain flexibility to try again in a different way rather than keep banging your head against a wall. This will aid your ability to learn as it removes the negative feedback and makes all experiences positive in some sense. It also makes it easier to take risks: there is less to lose and more to gain. This can lead to more than making a radical move or just speaking out honestly on a topic, it can help you develop integrity.

There is also an element of self-forgiveness in the quality of going beyond one's mistakes and trying again. By removing the urge to fear-driven effort, you give yourself permission to receive insights from information that is all around you. This can lead to creative solutions not available to those obsessed with macho, controlling behavior. You may find your game takes longer as you abandon the pressing fight to allow your intuition to work on other solutions, or you may play faster as you get out of your own way. You may find less pressure in your day-to-day life as you let solutions offer themselves.

The Dinosaur's Hind Brain

They say two heads are better than one. In the case of the big dinosaurs, two brains were essential to survival. It took too long for messages from the far end of the tail to reach the brain in the head, so nature evolved the hind brain. It didn't think, it just reacted. Today this design carries through into humans. When you stick your hand on a hot object, you don't spend time thinking about whether you should release it. A message travels to your spine which sends an action response back without thought — a reflex action. The amazing thing is that humans can consciously override this reflex. You are able to keep your hand there and let it burn. This is not usually a good choice.

Reaction follows perception. To react to something you must be aware of it. If you are a raw beginner at Go, you see only a mass of stones scattered on top of the board. To improve, you must detect things above mere stones. You must see strings, links, territories, and groups, and be able to recognize when they are in danger. Then you can train your hindbrain to reflexively save stones threatened with capture, solidify endangered links, and keep your groups alive. Then you can train your forebrain to dispassionately analyze the whole board and determine your best course of play.

Strings

Stones of one color that touch each other horizontally and/or vertically along the grid are *strings*. Diagonally placed stones are separate strings. In Diagram 1, all *a*'s are one string. *b*, *c* and the *d*'s are separate strings.

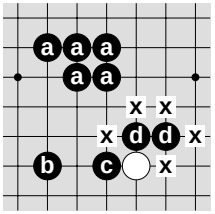

Diagram 1

The rules say you can put a stone on *any* empty intersection (subject to suicide restrictions which are unimportant, so I will ignore them). After all your work to surround a territory, the enemy can just plonk a stone in the middle of it to dispute your claim. Fortunately, the rules also provide for capturing stones to defend territories you create from just such invasions. Strings, not stones, are the fundamental units of capture.

Empty intersections touching stones horizontally and/or vertically (but not diagonally) are *liberties*. In Diagram 1, the *a* string has nine liberties, *b* has four liberties; *c* and *d* have three and five liberties respectively. All liberties of *d* are marked with *x*; *d* and *c* share a common liberty.

Give Me Liberties or Give Me Death: By the rules of Go, when a string has no liberties, it is removed from the board.

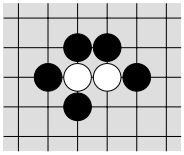
Diagram 2a

In Diagram 2a, White's string has just one liberty. Black can capture it with one more move. White's string is in *atari* (threatened with immediate capture).

In Diagram 2b, Black played on White's other liberty and removed White's two stones from the board. Black gets to keep them as prisoners. They add two points to Black's score. Black also has two points of territory now.

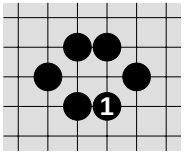

Diagram 2b

Last One on Wins: In Diagram 3, White has just played 1. Both Black's marked one-stone string and White's three-stone string including 1 have no liberties. What happens? The rule is whoever played last wins. It's like an underwater fight. Whoever takes the last deep breath before submerging will win. The correct sequence of events is: put a stone down; remove all enemy stones with no liberties; remove all friendly stones with no liberties.

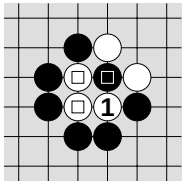

Diagram 3

In Diagram 3, the removal of the single marked Black stone leaves White's three stones with one liberty, so they remain on the board. Because they are now in atari, Black could replay where the marked Black stone used to be to capture three White stones; Black would then be the last one on and end up with two liberties. The situation

wherein multiple stones capture a stone and get immediately recaptured is called a *snapback*. In reality White's two marked stones were doomed to snapback, and White shouldn't have played White 1 to save them.

The Eyes Have It: In Diagram 4, Black has two liberties. How will White capture it? If White plays on either of the two liberties, White's move will have no liberties while Black's stones will still have one liberty. White's move would be removed as a suicider. (Suicide is illegal in some rules, just stupid in others.) It is not possible for White to capture Black. Black has two eyes.

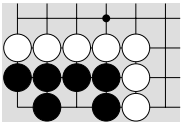
Diagram 4

An *eye* is a liberty surrounded on all sides by stones from a *single* string (or stones that could connect elsewhere to become a single string). If a string has only one eye, then to capture that string you must fill the eye last. The string is then removed per the rule of **Last One on Wins**. If you fill the eye before filling all other liberties, your own move dies and the opponent's string remains.

If a string has two eyes, it is immune from capture. You can never fill the eye last, because there are two of them. Strings with two eyes can never be killed. They are alive.

False Eyes: If more than one of your strings bounds the eye, then the opponent may be able to capture just one of them to occupy the eye. In Diagram 5a, White has something that looks like an eye but it is bounded by two White strings. To join them into one string, White would have to fill in the eye itself. Since Black can capture into the eye without killing all bounding strings at once, such an eye is called a *false eye*.

Ko: It is possible to create a situation where, after capturing the opponent, your stone is capturable, and, after you are captured, you can recapture your opponent, and so on. Such a repeating situation is a *ko*, meaning eternity. The recapture recreates the previous position. This is illegal in Go. You may not recreate previous board images.

Before recapturing in a ko, you must play elsewhere for one move, making a *ko threat*. This breaks the repetition by changing the board elsewhere. Your opponent either wins the ko (e.g., connects the stone in the ko) or responds to the threat. If your opponent responds, then you recapture the ko stone and await your opponent's threat.

Diagrams 5a-c illustrate a ko. In Diagram 5a, White's marked stone is in atari. In Diagram 5b, Black 1 captures White. In Diagram 5c, White 2 captures Black 1; the situation now looks exactly like Diagram 5a. This is illegal. White must first play a move elsewhere. (If that had happened, White 2 would have been labeled White 4).

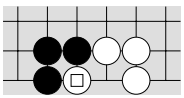
Diagram 5a

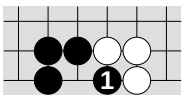

Diagram 5b

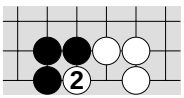

Diagram 5c

The rule of ko gives Go an extra strategic dimension. It teaches indirection. The threat of ko requires constant consideration of the creation and neutralization of ko threats, even without a ko happening.

Saving Strings: There are two ways to save strings threatened with capture:

1. **Play the last liberty yourself.**
2. **Capture an adjacent enemy string.**

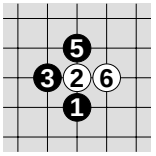

Diagram 6

In Diagram 6, Black 5 threatens to capture White 2. (White chose to play move 4 elsewhere.) White saves White 2 by extending with 6, creating a bigger string with new liberties. Black now has to fill three more liberties to capture White.

In Diagram 7, Black's two marked stones are in atari. If Black extends to *a*, they will still be in atari and White will capture all three by playing right of *a*. Black can save the marked stones in Diagram 7 by playing at *b* and capturing two White stones. The removal of White's two stones will leave Black's marked stones with three liberties.

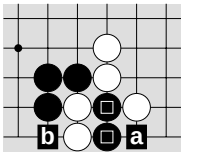

Diagram 7

Dead as a Doornail: Sometimes you should override the hindbrain's saving reflex. In Diagram 3, capture didn't help White. In Diagram 7, extending didn't help Black.

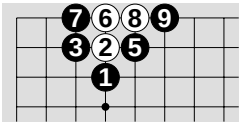

Diagram 8

Here, in Diagram 8, there is no salvation whatsoever for White after Black plays 5. (White chose to play elsewhere for the 4th move.) White can neither capture nor extend to safety. If White extends with White 6, Black persists with Black 7. When White now plays at 8, Black can kill the White string with 9. Three White stones would then be removed from the board. White should not play at 6 and 8, since escape is impossible. White 2 is dead and White should play elsewhere.

Go is a bit confusing in its terminology. Stones that are removed from the board are called captured, and stones that cannot avoid being removed from the board are called dead. Yet captured stones can never be rescued (unlike prisoners of war), and dead stones can be rescued (as though resurrection of the dead were possible). They should have reversed the use of these words.

Automatic Capture: If stones cannot find safety by the end of the game, they will be removed as captured, *without having to fill in their liberties*. Both sides just agree there is no escape and that the stones are dead. If both players fail to agree on the life and death of stones, they continue playing to prove their beliefs. Anyone who passes during this resolution phase must hand a stone to the opponent as an automatic prisoner. This keeps the score balanced as one side fills in to kill and the other side passes.

Links

Strings are easy to see. Links, the foundations of more complex relationships, are slightly harder. A *link* is an invisible association between close friendly stones (a stone link) or a stone and an edge (an edge link). The stones forming the link are *endpoints*. Edge links have only one stone endpoint; the edge of the board acts as the other.

Links tie friendly strings together to form barriers and these barriers fence off areas of the board from enemy access. Stones lying on the same line or only one line apart horizontally or vertically create this barrier effect. If stones are more than one line apart in both directions, they leave a gap that is easy for the enemy to penetrate.

So, to be a link, the endpoints must be within one line of each other in one direction and relatively close together in the other direction. As the endpoints move farther apart, they change character abruptly, as described in *Call of the Wild*. If two stones (or a stone and the edge) are not related via one of the patterns shown in Diagram 9, they do not form a link. They are too widely separated; their barrier is easily breached.

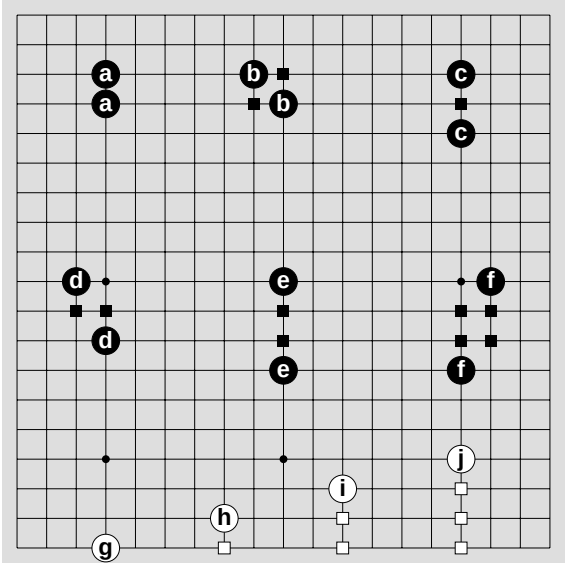

Diagram 9

Stone links (in black):
a in-line extension
b diagonal
c single-skip
d small knight
e double-skip
f large knight

Edge links (in white):
g in-line extension
h single-skip
i double-skip
j triple-skip

The marked points in between the two endpoints are *path points* that you can occupy to join the ends into a single string or that your opponent can occupy to prevent you from forming a single string. As a rule, shorter links are stronger than longer ones. Straight line links are stronger than bent ones of equivalent length. In-line links are stones solidly connected into a single string and I mention them only for completeness.

Links are threatened or attacked by enemy stones placed near them. Answer threats and attacks promptly, as a hindbrain reflex.

Threatened Links: An enemy stone touching adjacent or diagonal to a path point threatens a link. Immediately secure a threatened link from further attack by playing on the path point closest to the enemy stone. The exception is: never react on the first line if there is an open second line path. Play on the second line path point instead to avoid having your move captured. In-line and diagonal links cannot be threatened.

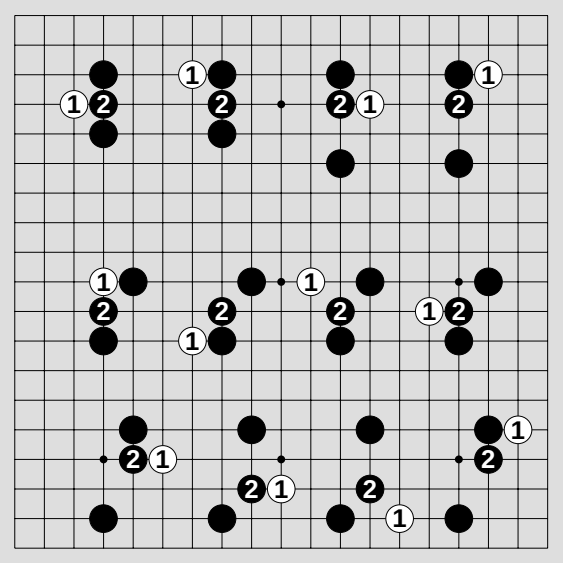

Diagram 10

Diagram 10 shows some (not all) threats against stone links (White 1) and correct defenses (Black 2). In response to White's threats, which are always adjacent or diagonal to a link path point, Black responds on the threatened path point.

Attacked Links: An enemy stone placed directly on a path point attacks a link. Always defend the link even if you cannot reconnect the endpoints. This will help you attack your opponent's stones later by keeping them separated or denying them easy access to a region. The act of preventing two stones from joining is called *cutting*, and the enemy stones doing that are *cutting stones*. Capturing cutting stones is valuable because it allows two strings to join into one.

The move defending an attacked link attempts to go around the opponent's stone to rejoin the endpoints. This move creates two shorter links, one from each endpoint to the defending stone. These will become the focus of further attacks if your opponent is insistent about separating your stones.

Diagram 11 shows White attacks (White 1) against Black links and correct Black responses (Black 2). Each response forms two shorter links, which become the focus of continued attack and defense. Sometimes White must take time out to save stones from capture, giving Black extra time to reinforce links. White's attacks are always on the link path point while Black attempts to rejoin endpoints by linking around the attacking stone.

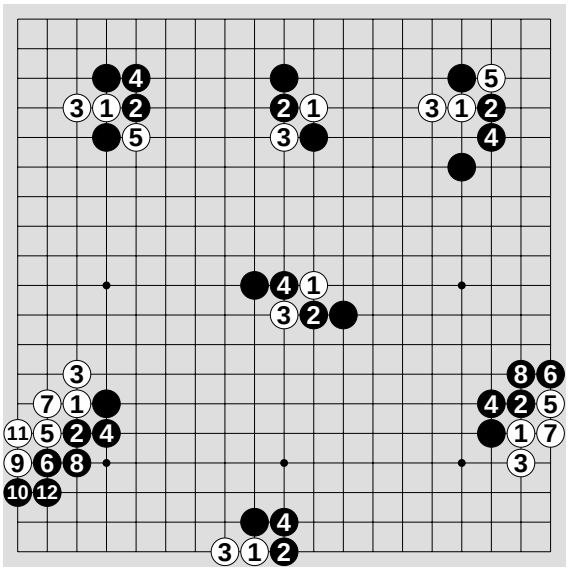

Diagram 11

Your opponent's attack may prevent you from connecting your two endpoints. Most of the attacks shown in Diagram 11 keep Black separated. Even so, the defended link remains as a barrier preventing the enemy stones from connecting.

Territory

A territory is a cluster of empty intersections enclosed by only one player's stones and links. (It may also contain embedded enemy stones considered dead — remember **Dead as a Doornail** earlier?) *Territory*, the collection of all territories, is the game's treasure, its *raison d'être*. Whoever has more territory at the end of the game wins.

Guard the Doors to the Treasure Room: Imagine that a territory is like a room with walls of stones and open link doorways. All the valuable treasure lies inside the walls. Nearby are thieves who would like to steal your treasure. If a thief approaches a door from outside, what would you do? You would close the door immediately (put a stone on the threatened link to secure it) to keep the thief out.

Suppose the thief somehow appeared inside the room, grabbed some treasure, and ran toward the door. Again you would close the door immediately. But this time you would immobilize the thief as well. You don't want a thief running around in the room trying to find another way out.

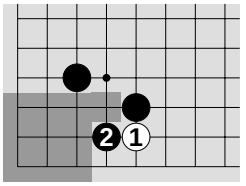

Diagram 12a

What would you do if the thief appeared standing in the doorway? You would try to slam the door. But the door wouldn't completely close. You should then build a new smaller door *between* the thief and your treasure. This is illustrated in Diagram 12a.

You could try to build up a door on the outside, entombing the thief in your room, but this is riskier; the thief might fight back. In Diagram 12b, Black seals White in, but the sequence White *a* through Black *d* might result in White living within Black's room.

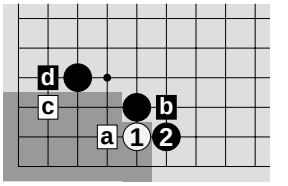

Diagram 12b

In short, when the enemy plays near or on a link doorway, defend the link immediately. Your hindbrain should already have mastered this as the link reflex, but it is also a territory reflex. If you have two links to defend simultaneously and only one is a territory doorway, make sure your hindbrain defends the doorway link first.

Tit-for-tat, Score Remains Pat: When you trap enemy stones in your territory, usually you do not need to execute them. They can't escape and at the end of the game they will be automatically removed. In fact, filling in all their liberties costs you points — you are filling in your territory. You only want to respond as needed to immobilize them. If your opponent invades and you defend move for move, preventing your opponent from living (making two eyes), there is no change in score. For each move you play inside your territory (losing one point), your opponent has placed a stone that you get to remove at the end of the game (gaining one point).

In Diagram 13a, Black has eight points of territory. In Diagram 13b, White invades with White 1 and Black 2 immobilizes the thief. White persists with 3, and Black again keeps White solidly contained. White will not play any further. All White's moves put White in atari. At the end of the game Black removes the two White stones and counts six points of territory and two White prisoner stones for an unchanged eight points.

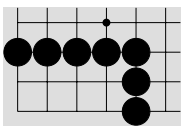
Diagram 13a

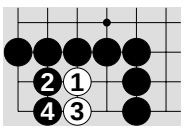

Diagram 13b

Once you have mastered the reflex of shutting the door on a thief, your territory is usually secure when it is sketched. That is why you sketch in the opening game instead of building solid walls immediately; you will have time to defend the doorways. But there are situations where your territory is not stable as it stands and you may want to defend it before the thief arrives.

Open 3-3 Instability: The first case involves a territory built in the corner. If the territory contains an unoccupied 3-3 point (third line from the edge in each direction) and you have no stone immediately adjacent to the 3-3 point, then your opponent will invade there as in Diagram 14. In doing so your opponent immediately creates a tiny room of four points. Suddenly you may have lost your territory.

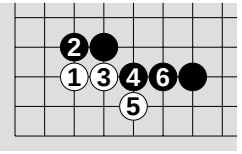

Diagram 14

Diagram 14 shows a typical 3-3 invasion. White invades with 1, Black seals the nearby door link with 2, but White marches onto the other interior link with 3. After Black 6, White has built a room of eight points out of Black's former territory. With a few more moves, White will be safely alive.

3-3 invasions can be prevented by playing on or adjacent to the 3-3 point first. In Diagram 14, Black could play at Black 2 to seal the corner before White invades. The extra defensive move touching the 3-3 point makes it easier to kill any White invasion.

Fourth Line Instability: The second case involves a territory with those wide doors so popular in hotel conference rooms. If the territory doorway is a fourth-line stone, it is hard to close the door on a thief.

In Diagram 15, Black has a territory with a fourth-line door. White can slide to *a* on the door, and Black cannot easily create a new door. The preemptive defense for the big door is to erect one or more smaller doors. Black could play at *a* or one above it to better secure the opening into Black's territory before White slides on in.

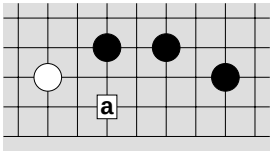

Diagram 15

Double Big Link Instability: The last case involves a territory using two large doors hung off the same small hinge. This hinge can barely stand the weight of the doors. When a thief arrives at one of the doors and you try to close it, a partner rushes the other door, which snaps off.

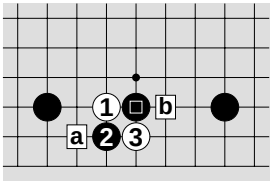

Diagram 16

In Diagram 16, Black has two double-skip links from the same central stone. White 1 and 3 are a sacrifice combination (White abandons one of these stones), after which White can play at *a* or *b* to break apart one of the two double-skip links. Each move threatens to capture a stone, so Black will have to save that stone and allow one of the links to be broken.

If Black wants to secure a double-door in advance of White, Black should add another stone above the center pivot or shrink one of the two doorways.

Groups

A group is a collection of strings connected by links. The strings of a group could become one string by playing on all the path points. Therefore a group acts as a virtual string. That is, a group bounds territory and has eyes by virtue of its links.

In Diagram 17, there is one Black group and one White group. The link paths are shown with marks of the appropriate color.

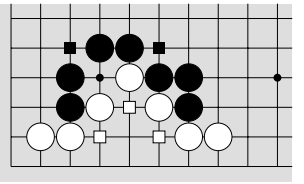

Diagram 17

The group is the primary unit of analysis in the midgame. If the group as a whole cannot get two eyes, then each and every string in the group also can't get two eyes. Eventually all strings of a dead group can be captured. The ability to recognize whether a group is alive or dead is essential.

Two Point Extension for Safety: As strings need liberties, groups need territory. So much so, that extending along the edge to gain territory is a group hindbrain reflex, overriding the general opening rule of extending into the widest areas first.

In Diagram 18, Black's stone initially has room to extend in two directions. But when White plays 1, Black must rush to play *a* to gain some territory. Otherwise White will play near there, and Black will never get an easy base for life.

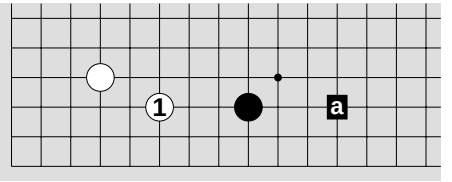

Diagram 18

What is a Weak Group? As you will learn, Go is driven by issues revolving around weak groups. Whether a group is weak or strong depends upon your Go strength and the configuration of stones. In terms relative to your strength, if you think *you* could attack the group, then it is weak. If you are nervous your opponent could attack it, then also treat it as weak. In absolute terms, a group is strong if it has enough territory and time to form life or if it has a lot of maneuvering room around it to grow into. Having five or more different single skips that could be played indicates you have enough room to maneuver. The moves must not be adjacent or diagonal to any enemy or friendly stones nor should they be on the first or second lines.

In Diagram 19, White's marked single stone group has one stone capable of supporting single skips (marked with *x*'s). Of the four possible skips, only two can be counted as maneuvering room because one touches Black's stone and another skips into the edge. The group is weak.

White's big group has five stones supporting six safe skips (marked with *y*'s). It is strong.

Black's middle group has four stones and three safe skips (marked with *z*'s). It is weak.

Black's corner group has territory enough for two eyes. It is strong.

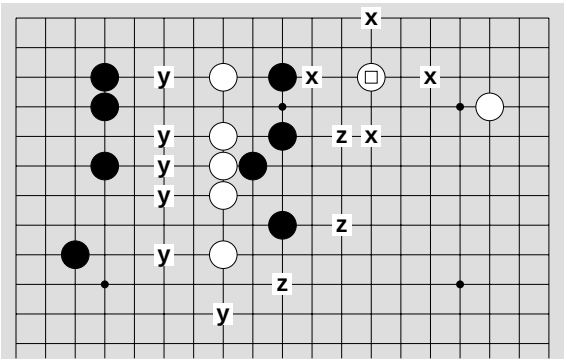

Diagram 19

Review: Diagram 20 shows examples of the basic structures. See if you can identify all the examples of each type:

- **String:** adjacent stones that are captured as a unit (7 Black, 8 White)
- **Links:** short range connectors and barriers (don't miss the large knight's move link of White's on the left-middle side) (12 Black, 13 White)
- **Groups:** linked strings (4 Black, 5 White)
- **Territories:** vacant points bounded by a single group (3 Black, 2 White)

All link path points are shown in boxes. The neutral region is the center of the board and space between opposing stones along the edge of the board.

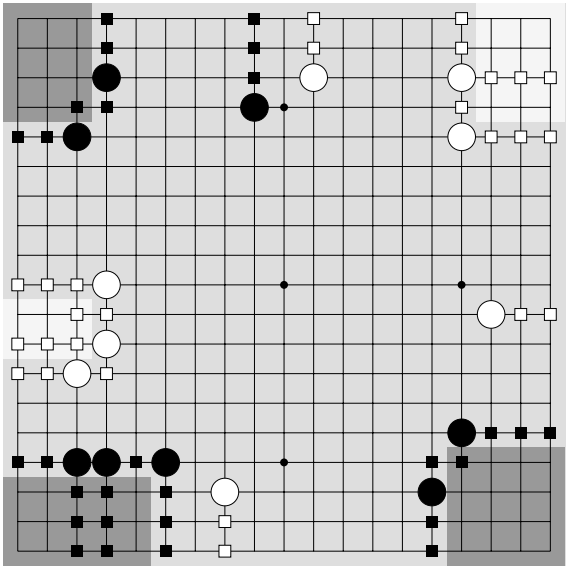

Diagram 20

If you have mastered these fundamentals of perception, you are off to a great start.

Ranks & Handicaps

One of the great virtues of Go is its handicapping system. Two players of widely different strengths can play an even contest where both have an even chance of winning. Black, who always plays first, is assumed to be the weaker player. To compensate for this weakness, Black is given extra initial moves. Instead of placing one move, Black places as many moves as necessary to start off on the right foot. Usually no more than nine handicap stones are given, but more are not impossible.

Diagram 1 shows the start of a nine-stone handicap game. Black starts with control over the entire board. Among professional players, the unmarked nine stones would result in a victory of about 140 points for Black. If Black can just keep stones connected out to safety, White will be in for a losing battle. Of course if this were easy for Black to do, Black would no longer get a nine-stone handicap.

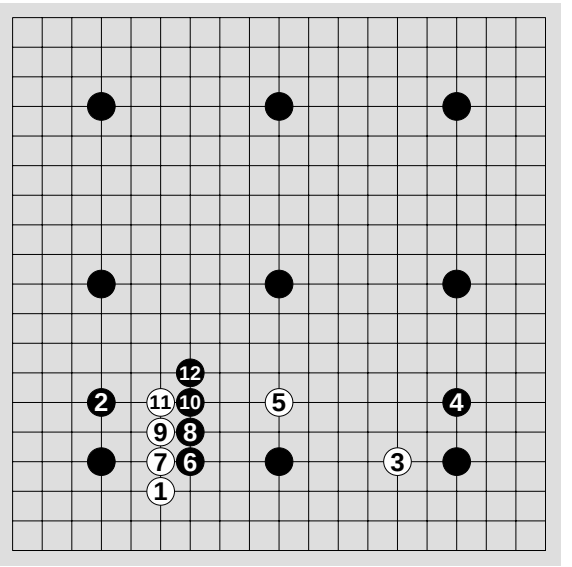

Diagram 1

Ranks are defined based on handicapping. If you have to put down three moves on your first turn to have an even chance of winning, then you are three ranks weaker than your opponent. As a raw beginner you start at a rank of 35th *kyu* and improve toward 1st kyu. As you improve past 1st kyu, you become 1st *dan* (black belt rank). From there it is up the dan ranks until you are as strong as anyone in the world (about 10th dan). A 5 kyu player gives a five stone handicap to a 10 kyu. A 5 dan player gives a five stone handicap to a 1 kyu player. (There is a one stone difference in strength between 1 kyu and 1 dan.) How many ranks are there in Go? If the weakest player is 35th kyu and the top pros are 10 dan, there are 45 ranks in Go.

People have asked how much stronger than a professional player is God? While the match has yet to be played, most estimates place God three ranks above top professionals. One pro is reported to have said he wouldn't bet his life against God without a four-stone handicap.

The Wolf Pack

There is violence in nature — predator stalks prey, to eat and to live. But this violence exists to preserve balance. If every herbivore lived, there would be immense herds of starving animals wandering over barren plains nibbled down to the dust. There is balance in nature and, though the individual scenes of death horrify us, this balance ensures that the complex ecology continues.

The rhythm of depredation followed by population recovery continues onto the Go board. Groups are attacked and die while new ones are created and thrive. A predator that goes for too much can be turned on and killed. No group is totally helpless and, just as in nature, sacrificing the weak helps others to live.

Hunting with the Pack

There are savage creatures on the Go board. Wild and untamed, they will do anything to survive. Packs of wolves hunt these creatures. They corner one of them, surrounding it with a baying pack then closing in for the kill. Think of your stones as the wolves. Wolves work together to surround and enclose their victim. Maybe the hunt starts with a daring raid by an opponent's creature on your territory. Maybe you make a deliberate attempt to surround and trap one in the wild. Or maybe you try to cut one off from a

herd of its friends. When you do attack it, sometimes it will turn and attack you, fighting desperately for its life or at least trying to take you down with it. These creatures are strings and can be as tiny as one stone or as big as you can imagine until they become the full fledged monster — a group. There are two steps to capturing the wild and wiggly strings: enclose the target and then go in for the kill.

Enclose the Target

To enclose strings you must encircle them with your pack of wolves. Otherwise they can run around (add stones to gain liberties) and become harder to kill. Enclosure is automatic when the enemy string invades your territory. The walls of your den surround it immediately. Trying to catch a string out in the open is much harder. You need to coordinate several wolves to keep your prey from running away.

An encirclement is composed of wolves with small spaces between them, i.e., links. Shoulder to shoulder wolves (in-line links) like Diagram 1 are inefficient. The prey won't wait for you to complete the wall of bodies and will easily escape. You can encircle more quickly and with the same effect using the longer links of Diagram 2a.

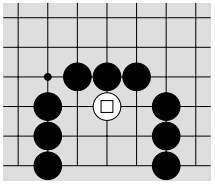

Diagram 1

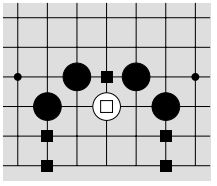

Diagram 2a

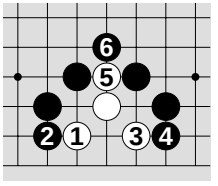

Diagram 2b

Once White's stones are encircled they are trapped. If they try to escape by slipping through the links, reflexively defend them (see Diagram 2b).

In order to set up an encirclement, locate where the enemy stones have open access to the rest of the board, then make a move that creates two links closing off the open access. An enclosing move always results in the target becoming surrounded by a continuous ring of stones, link path points, and possibly the edge.

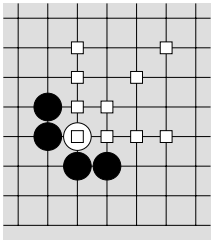

Diagram 3a

In Diagram 3a, White's stone can expand in the directions indicated by the white boxes.

If Black plays at 1 in Diagram 3b, Black creates two single-skip links to contain White's stone. White is now enclosed. There is no more open access.

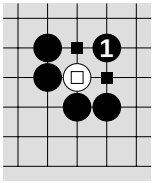

Diagram 3b

There are typically many moves that enclose a target in links. To select among the possible choices, apply the following rules in order:

1. **Don't create links already under attack.** The enemy will just finish destroying the link. Threatened links are OK. You will still have time to defend them after the enemy responds. In Diagram 4a, Black 1 creates a large-knight's link to the marked Black stone, but the link is already attacked by White. White 2 completes the destruction of the link and Black has made no progress in enclosing White.

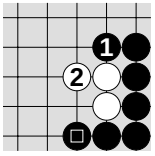

Diagram 4a

2. **Select the shortest and closest links to the target.** The tighter the noose is around a victim's neck, the faster the victim will die (the fewer liberties it can acquire by wriggling around). In Diagram 4b, Black contemplated playing *a*, but Black 1 creates a shorter pair of links to the marked endpoints.

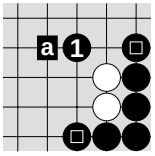

Diagram 4b

3. **Pick the move with the most liberties**, if you still have multiple moves to choose among. This improves your stamina in a fight.

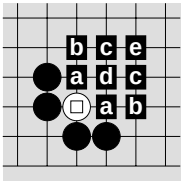

Diagram 5

Diagram 5 shows all possible enclosing moves. Symmetrically equivalent moves have the same letter. *a* and *b* form links already under attack (i.e., links that have an enemy stone on one of their path points) and must be rejected. *c*, *d*, and *e* are acceptable. *d* creates the shortest link pair and is therefore best.

In Diagram 6, White 1 has just invaded Black's position. If Black wants to kill White 1, Black must first enclose it with *a*, *b*, *c*, or *d*. Applying the rules:

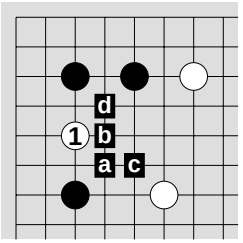

Diagram 6

1. Discard *d;* it forms a link already under attack.

2. Discard *c*; *a* and *b* produce shorter links.

3. *a* and *b* are similar (though *a* has one shorter diagonal link it also has one longer large-knight link; *b* has two small-knight links). *a* is preferred because *a* gets more liberties than *b*.

Go in for the Kill

Once your pack has encircled the victim it's time to finish it off. It's important to do this right or you may lose members of your pack. The victim may even get away, leaving you and your family to starve. You can only go after and fill one liberty per turn, so it's important to pick the right one.

To select among the possible choices, apply the following rules in order:

1. **Attack from a safe base**, playing liberty-filling moves that are adjacent to or diagonal from your existing stones. This will help protect them from counterattack.

2. **Fill your opponent's best liberty**, the one that would provide the most liberties if your opponent played there.

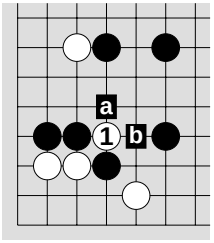

Diagram 7a

In Diagram 7a, White 1 is already enclosed, with liberties at *a* and *b*. If Black played at either *a* or *b* that would be attacking from a safe base. The best liberty is *a*. If White played there, White's stones would have four liberties. If White played at *b*, White would have only three liberties. Black should play at *a*.

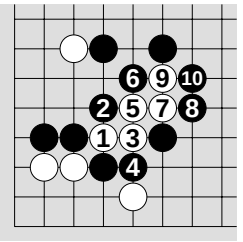

Diagram 7b

If Black applies the liberty-filling rules at each move White will be captured as shown in Diagram 7b. At the end of Diagram 7b, five White stones will be removed by Black.

Can the Prey Climb a Ladder?

There is a potential exception to avoiding attacked links when enclosing strings. This exception is the ladder.

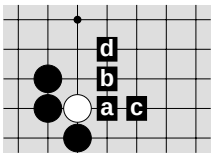

Diagram 8a

In Diagram 8a, Black would normally pick none of *a*, *b*, *c*, and *d* to enclose White, since all form attacked links. White has only two liberties, however, so Black *may* be able to pick *a*, putting the White stone in atari and loosely enclosing it.

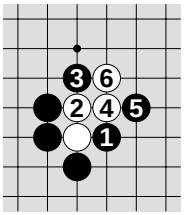

Diagram 8b

In Diagram 8b, Black tries to capture White by playing 1. White 2 breaks Black's enclosing link. To re-enclose White, Black must play 3. This sequence is repeated through White 6. How will it end? If nothing else is in the way, the moves will zigzag all the way across the board, and White will run out of liberties at the edge. This is a *ladder* capture. Each move must keep White in atari or White will turn around and attack Black's weak line of stones.

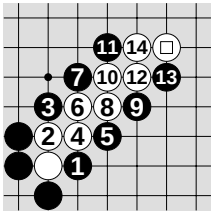

Diagram 8c

If a White stone appears in the way of the ladder, as in Diagram 8c, the ladder fails and Black will be in trouble. *Never play out a ladder whose result you can't figure out.* You will lose the game quickly.

Leader of the Pack

When prey stumbles into your den, killing it is easy. It is trapped. But sometimes the intruder is not just a food creature but another wolf, and both of you are trapped. You surround each other. In such cases a fight to the death develops. Whoever fills in the other's liberties first wins and becomes leader of the pack. This is a *capturing race*.

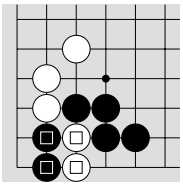
Diagram 9

In Diagram 9, Black and White have marked stones caught in a deadly struggle. Black has two liberties and White has one. White will lose this capturing race, no matter what.

In Diagram 10, Black has two liberties and so does White. Whoever plays first will win, so it is urgent to play here.

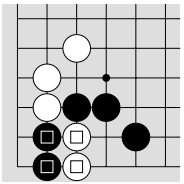
Diagram 10

Generally speaking, whoever has more liberties wins without playing further. In case of a tie, whoever plays first wins. If you do play further, you need to be careful. It's a tight space with no room to maneuver. Turn your back for a moment and you will lose.

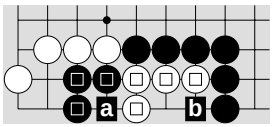

Diagram 11

In Diagram 11, Black has three liberties and so does White. Time is of the essence If Black plays on the shared liberty (*a*), suddenly the race is two-two, and White proceeds to kill Black. To win, Black must play at *b*, making the race three liberties to two liberties.

The rule in the capturing race is to fill in liberties from the "outside" first, away from the other stones involved in the race. Fill in shared liberties last. To remove White in Diagram 11, Black must play at *b* first, not *a*.

Is Cutting Feasible? Knowing about capturing races, you can decide if it's safe to cut somewhere. Imagine you have just cut. Will your cutting stone be surrounded? If not, it is safe. If it is surrounded, will any opponent's stones be surrounded? If not, your cut is dead. If both of you are surrounded, what will be your liberty counts? If your counts are at best even and you are enclosed, you will die. You must have more liberties than your opponent to win.

In Diagram 12, Black has a diagonal connection in the territory wall at *a*. If White cuts there, Black and White will both be enclosed. White will have two liberties. Black will have three liberties on one adjacent string and two liberties on the other. Since White is not stronger in liberty count than Black and it will be Black's turn after White cuts, White will die. Therefore White won't cut, and the territory boundary is safe enough for now.

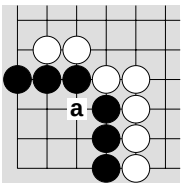

Diagram 12

In Diagram 13, Black has a diagonal connection at *a*. If White cuts there White will have two liberties and Black will only have one. Since both sides will be surrounded and White will be ahead in liberties, White can cut and Black will lose two stones.

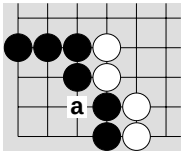

Diagram 13

Play Dead: When you have lost stones in a capturing race, don't play it out just to see if the opponent will match you move for move. Play dead. Later you can use these moves as ko threats to reverse the race. Or maybe your opponent won't notice the moves that threaten to revive your stones later, but would be paying attention now.

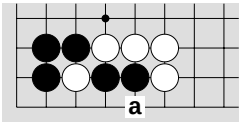

Diagram 14a

In Diagram 14a, White has clearly lost the race, one liberty to two. White should not play *a* now but should save it for a ko threat.

In Diagram 14b, Black gets careless and plays endgame moves against White's stones. After Black 3, Black has the same number of liberties as White's unmarked single stone, so White can capture the four Black stones. This may seem unlikely, but only slightly more complex variants of this happen all the time.

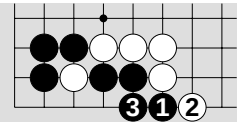

Diagram 14b

Capture or Territory? Holding or extending your territory is more important than killing for fun. Only kill if you need the food. It is not efficient to kill unnecessarily. This admonition usually falls on deaf ears. You can gain points by capturing strings or by enclosing territory. Beginners are often overcome by blood lust, and most players enjoy the thrill of the hunt. However, capture is not the objective of the game — surrounding the most territory is. Capture's purpose is to defend your claims.

In Diagram 15, Black takes six moves to make nine points of territory. White takes six moves to make four points by capture (two points of territory and two prisoners). Black made more points going for territory than White did going for killing a string.

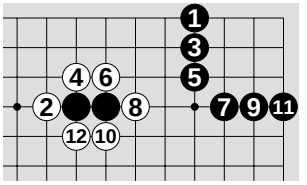

Diagram 15

Kill strings to save your stones, to make eyes for your groups, to join a weak group to a stronger group, and to protect territory. If you kill for fun, don't expect a large profit.

The easiest place to find out almost all you could want to know about Go is on the World Wide Web. Provided you have the computing resources, a modem, and access to the Internet, there is lots of Go information out there. Ideally, or even presumably, you will have a net browser such as Netscape Navigator and a choice of search engines to find things for you. You need an Internet account with telnet capability in order to play Go easily on the Internet. Your public access provider must have a local phone number or you will be in debt forever if you find you enjoy playing Go on the Internet. Outside the US this is presumably going to be a problem as you'll often have to pay for connect time. Best idea is to go back to university and get a free account there or move to the US.

The general clearing house for the latest Go information is the newsgroup: **rec.games.go**. Read the latest news, scandals, tournament postings, news of new products, questions and answers, then add your own comments on Go issues. From here you can obtain the Go FAQ (Frequently Asked Questions) — a list of Go information. Useful items in the FAQ are: an explanation of what Go is and how to play, some help with terminology, where to get Go books and equipment, understanding Go rankings, how to find a club to play at, what programs are available to display game records or play you at Go, and how to find out more about computer Go.

If the FAQ isn't currently posted in rec.games.go, go to Fred Hansen's Home Page:
http://www.cs.cmu.edu/afs/cs/user/wjh/public/Home.html

The FAQ is just a part of the Go goodies on offer at the Go archive site:
http://panda-igs.joyjoy.net. This site also features amplified information mentioned in the FAQ and compressed files of clients, programs, translators and a huge assortment of game records and other useful Go stuff.
You can also access the FAQ via: **http://www.smartpages.com/faqs/**

There are a number of World WideWeb Home pages which deal largely with Go matters, from gossip, photos of well known players, discussions on Go programming theory, tournament arrangements, and Go songs, but as these are available as personal whims and likely to change we will not list them all here.

Official Go information in Great Britain is available on the British Go Association page: **http://www.britgo.org/index.html**

The American Go Association has its page: **http://www.usgo.org**. Its snail address is: PO Box 397 Old Chelsea Station, New York, NY 10011.

Computer Go has an official mailing list for those interested in this special field. Contact: **listproc@listproc.anu.edu.au**.

But for the fun news see Michael Reiss's Computer Go page at:

http://www.reiss.demon.co.uk/webgo/compgo.htm

It features what's new on the Computer Go scene, where to get Go software, software in development, a Hall of Fame with photos, details of the massive Ing prize, gossip, and a lengthy bibliography.

There are various resources for playing Go on the Internet. One is in Korea, the Internet Go Server at: **igs.joy.net** (port 6969). This is the area of strongest play. There is also go available at **http://games.yahoo.com/games/login?game=Go**.