

# Soccer Strategy

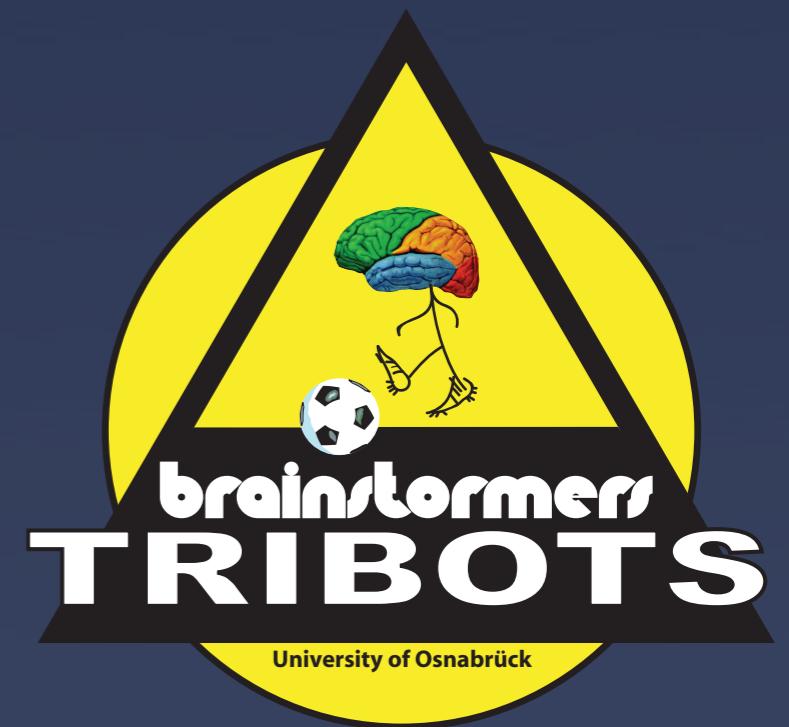
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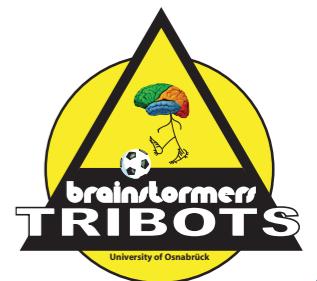
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# Motivation

- Cooperation in the Tribots up to RC 2004:
  - treated more than an annoying necessity than a chance
  - no general concept but collection of N individual solutions



# Motivation

- Some deficiencies:
  - WLan break-down: No robot approached the ball
  - Implementation of coordinated plays nearly impossible, coordination had to be spread to nearly everywhere
  - no dynamic help (in case one robot was beaten)

# Motivation

- Very primitive, „static“ team strategy
- each robot formed an individual „line of defense“
- each robot became the single striker in case it gained possession of the ball
- robots without ball possession did not make a difference between attacking and defending

# Motivation

- New goal (since 2005): Implement a complex team defense strategy in the Tribots
  - keep a complex formation while moving
  - coordinated action in sub-teams
    - double team
    - passing (in offense)
  - dynamically providing help, dynamic role changes

# Example: 2-2-1 Pressure Defense



## CONNECTICUT'S 2-2-1 PRESSURE DEFENSE

JIM CALHOUN  
NCAA CHAMPION COACH

Since Jim Calhoun's arrival at the University of Connecticut, the 2-2-1 zone press defense has been used with remarkable effectiveness. Coach Calhoun's 2-2-1 plays an integral role in a Connecticut defense that

defends the first play by trapping the ball. We will indicate with the deep man, X5, X5 will move to the strong side to defend the deep "alleyway" against any lob pass to a front-court offensive player. X4 will quickly rotate back to the basket. It is important to note that any pass to the middle can only score if the ball is passed directly to the ball out of the middle for our press to be effective. The ball must go around our press, never through it.

We do not discourage the reversal pass because we do not believe that it will hurt our rotation or good defense. After our first trap we will rotate, adjust, and recover to retrap, a unique feature of our 2-2-1, which has contributed significantly to the success of our press. Many teams trap once before rotating their press back. We will trap a number of times in a single possession before taking off the press. Another point we emphasize is that we do not believe the one diagonal pass will hurt us, simply because we will score the ball and make it very difficult to throw by placing good pressure on the ball handler.

On bad reversals we will employ the fundamental "bump" principle and make the appropriate rotations (see Figure 19.38). As the ball is reversed, the entire zone

will immediately X1 pressured the ball while X2, X3, X4, and X5 essentially formed a "box" of help behind him ready to react. On the reversal X2 now pressures the ball at the point of our "1-4 Principle," with X1, X3, X4, and X5 providing help behind him.

We already discussed the trapping of the ball along either sideline (see Figure 19.39). It is important to note that we are not concerned with where the trap is

- **Don't reinvent the wheel: use defensive team strategies from „real“ sports for the Tribots**



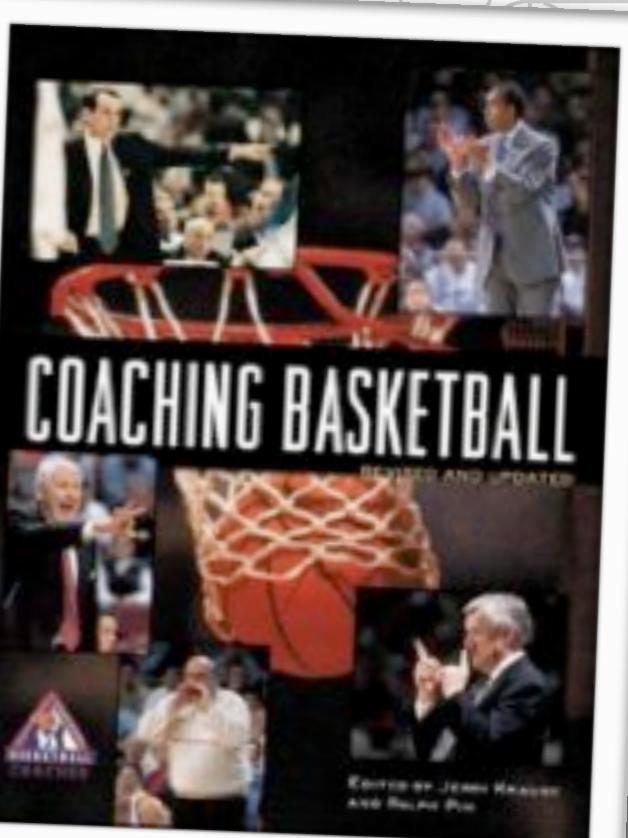
Figure 19.39

more in the lane as long as it is a good trap. We tell our players that we want a good trap, not necessarily an early one." By a "good trap" we mean an aggressive, solidly executed trap in which our defenders have their hands up, put pressure on the ball, and *body up* to the offensive player to make it more difficult for him to escape or make a pass.

Good traps in the backcourt as well as in the frontcourt, we allow the reversal pass—so that our opponents to use up as much of the court as possible to get past half-court as possible. If the ball does get advanced just outside the half-court, trap situations arise and we tell our players "We're going to get them." Another area where the trap occur in this area is to cover the ball should a trap be broken. In this situation each player must work hard to get into a good defensive position. The shortstop must work very hard to cover the middle area and the basket. The center must move with the basketball as it is advanced up-court. The guard must be a man-to-man or zone defender, depending on Calhoun's preference. Coach Calhoun will indicate this to the players through his signal.

We try to spring several traps within a possession, depending on the strength of our offense. We may gamble much more, encouraging our defense to force a turnover. We take fewer chances in a possession against the stronger teams on our schedule.

Assume they throw out our first trap near midcourt to a player ahead in the alley (see Figure 19.40). Using the action from Figure 19.39, if the ball goes to the sideline to 4, X5's job is to control the ball. We will live with the ball for a while and then respond with X4 coming from midcourt to cover the ball. We will live with the ball for a while and then respond with X4 coming from midcourt to cover the ball.



moves up and matches up with the ball. X1 and X2 have been X1's man. X4 and X5 will also match up to the frontcourt personnel. Hence, the matchup becomes

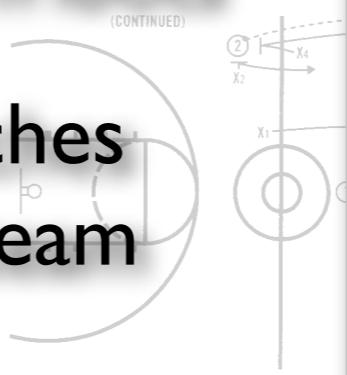
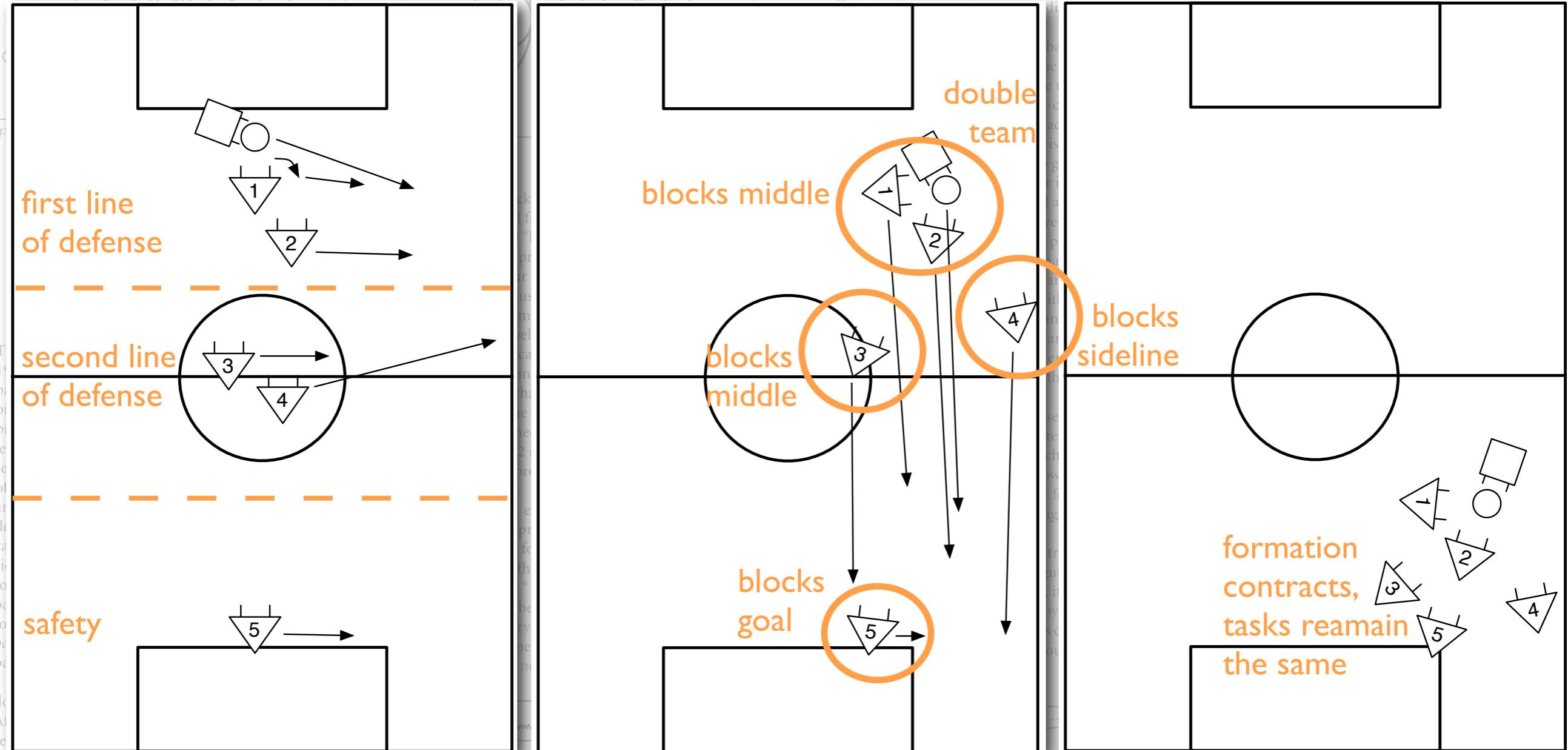


Figure 19.40



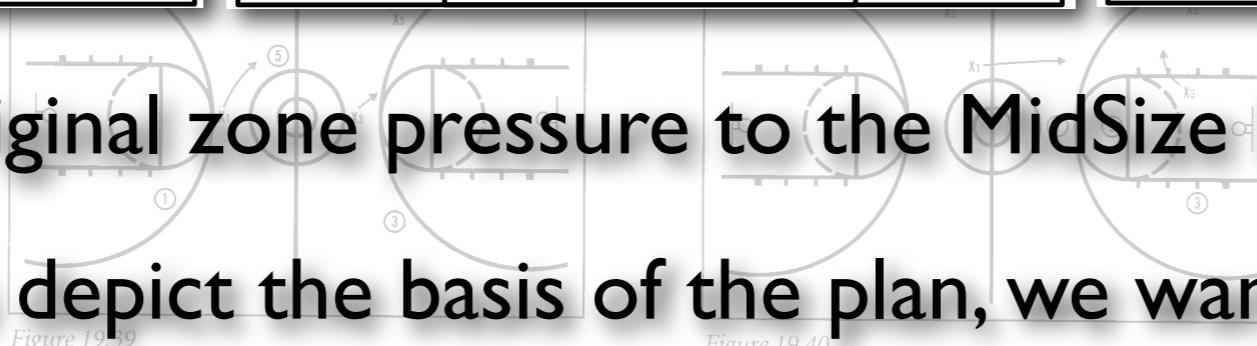
# Example: 2-2-1 Pressure Defense

more in the lines as long as it is a good trap we tell our players that we want a good trap, not necessarily an early one." By a "good trap" we mean an aggressive, solidly executed trap in which our defenders have their hands up, put pressure on the ball, and *body up* to the



tributed significantly to the success of our press. Many teams trap once before pulling their press back. We will trap a number of times in a single possession before taking off the press. It is extremely important that we do not believe that 5 passes will beat us, simply because we will discourage that pass and make it very difficult to throw by placing good pressure on the ball handler.

On a ball reversal we will employ the fundamental "bump" principle. As the ball is reversed, the entire zone (see Figure 19.38). As the ball is reversed, the entire zone



*Out of the 2-2-1 (Figure 19.42)*

Depending upon the scouting report of an upcoming opponent, we may find it advisable to vary our 2-2-1 pressure defense. Instead of pulling it back and retreating some. This presents another look for our opponents to contend with. We simply will start our front-line people back toward half-court (as opposed to the foul line extended area where they would normally pick up opponents). The extended pressure defense formation is also very effective at helping us to alter and control the

- Adapted the original zone pressure to the MidSize League

- These diagrams depict the basis of the plan, we wanted to implement

- Playertypes hook in the architecture as the „decision making“ module
  - can be (manually) changed during runtime (all types are available to each robot, abstract factory) but do not change automatically / within a game
  - Playertypes used during a soccer game:
    - fieldplayer (all robots despite the goalie)
    - goalie
  - there is no communication / cooperation between players of different types
- ➡ in this talk we only consider the fieldplayers

- Distinction made between
  - „Explicit“ Cooperation and
  - „Implicit“ Cooperation / Coordination

- „Explicit“ Cooperation
  - involves communication; e.g. commanding, contracting, bidding, etc.
  - decisions made during game
  - AI-techniques, done by the robots
  - latency, bandwidth usage, hard to predict, take care of ambiguities / oscillations

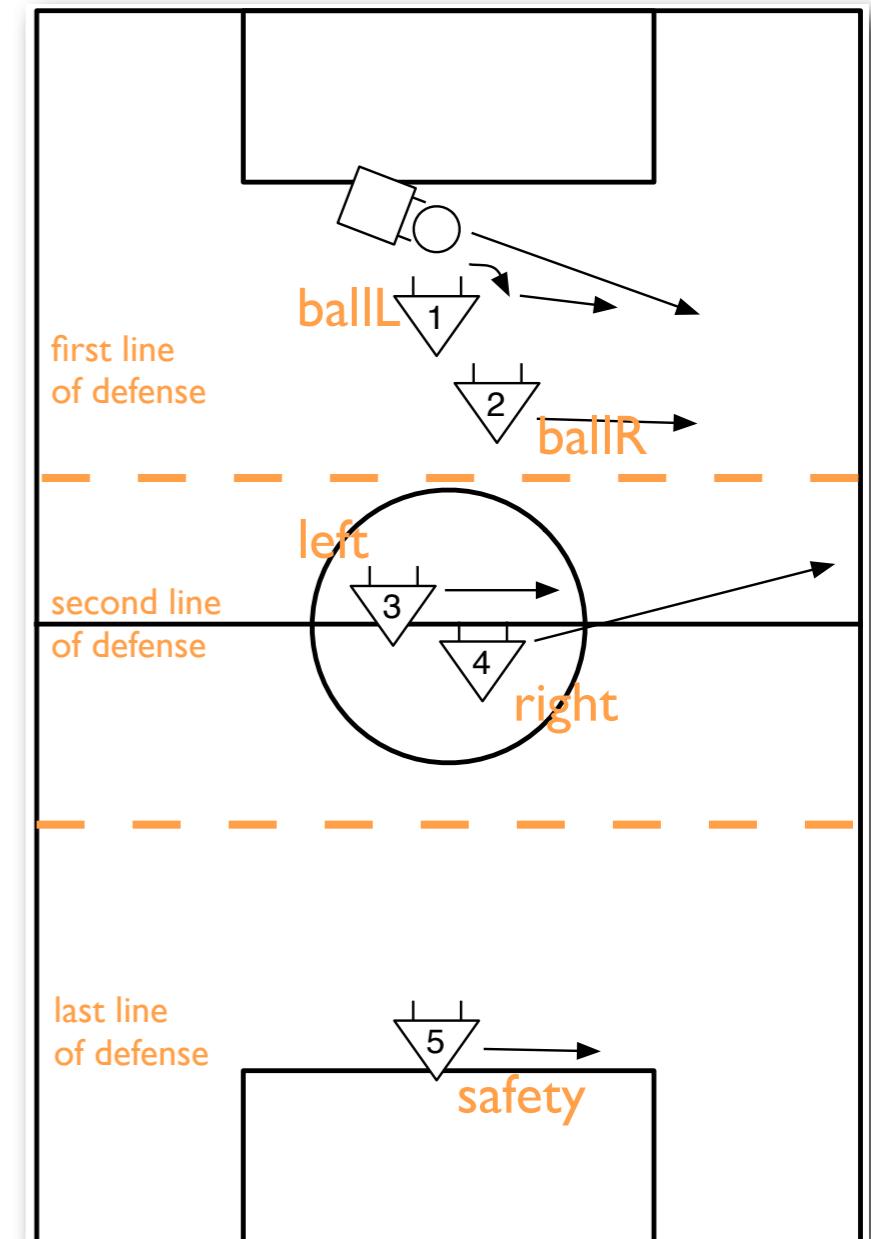
- „Implicit“ Cooperation / Coordination
  - coordinating player's behavior during implementation phase, simply by knowing and adapting all other players' strategies
  - decisions made before game
  - human, not done by the robots
  - no latency, no bandwidth usage, oscillation may occur, not „adaptive“
  - „Mirroring“ (calculating the other player's strategy to adapt own decisions to their strategy)

- Distinction made between
  - „Explicit“ Cooperation and
  - „Implicit“ Cooperation / Coordination
- we try to avoid explicit cooperation wherever possible

- What is a „role“?
- collection of responsibilities (motivated by real sports)
- may be switched dynamically
- existing roles defined before the game
- we use roles mainly as tool for implicit coordination
- optionally map player-roles to roles of specific tactics
  - field-player-roles to zone-pressure-roles (presently id)
  - field-player-roles to standard-situation-roles
- thus, we have different sets of roles in the strategy

# Roles in the Tribots

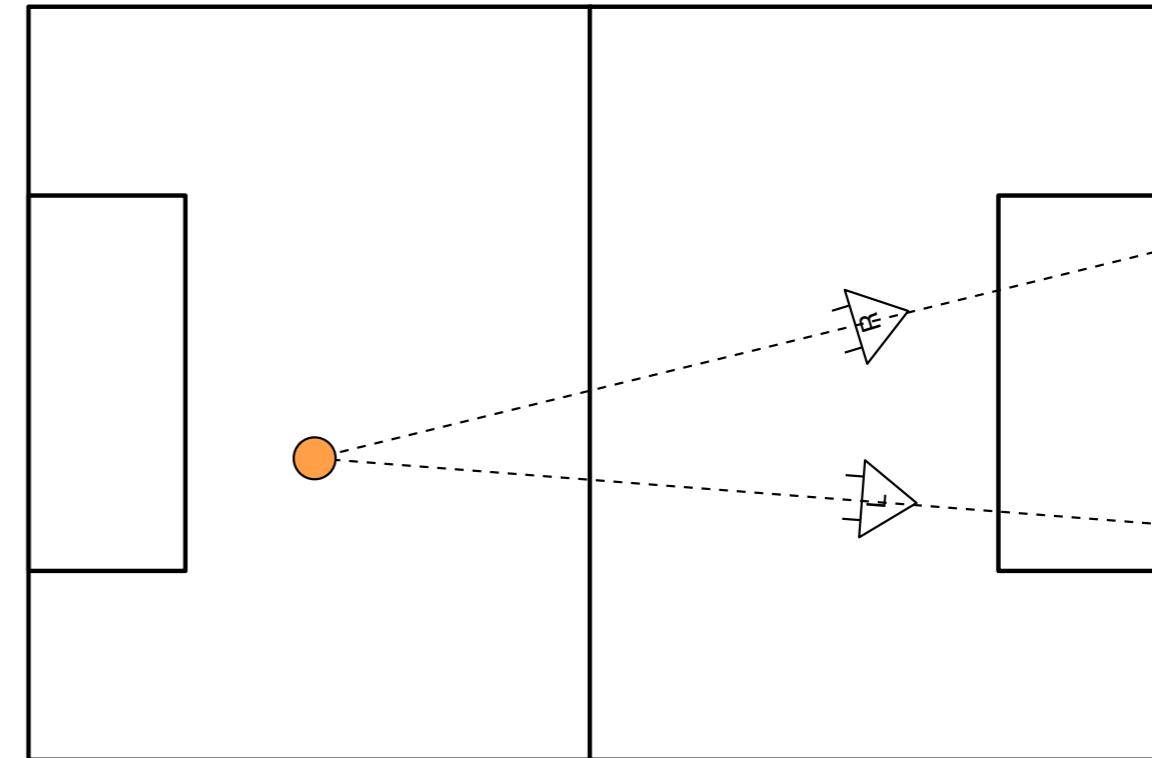
- ballL, ballR:
  - closest to the ball (left side, right side)
  - should try to get possession of the ball
  - „strikers“, first-line-defenders
- left, right
  - further away from the ball
  - should block shots to the goal
  - „defenders“, second-line-defenders
- safety
  - stays at the own penalty area
  - last-line of defense



- How do we realize roles?
  - assigned role is just an additional information in the „state“
  - roles are defined for each playertype, e.g. goaly does not care about roles of fieldplayers
  - no separate code / behavior stacks for different roles
- Influence of roles on the strategy:
  - Modification of the output of a behavior. Example: protect goal.
  - Modification of the activation of a behavior. Example: block the sideline.

## BProtectGoal:

- most simple modification of the behavior
- both roles (left&right) use exactly the same behavior
- only some reference point is changed

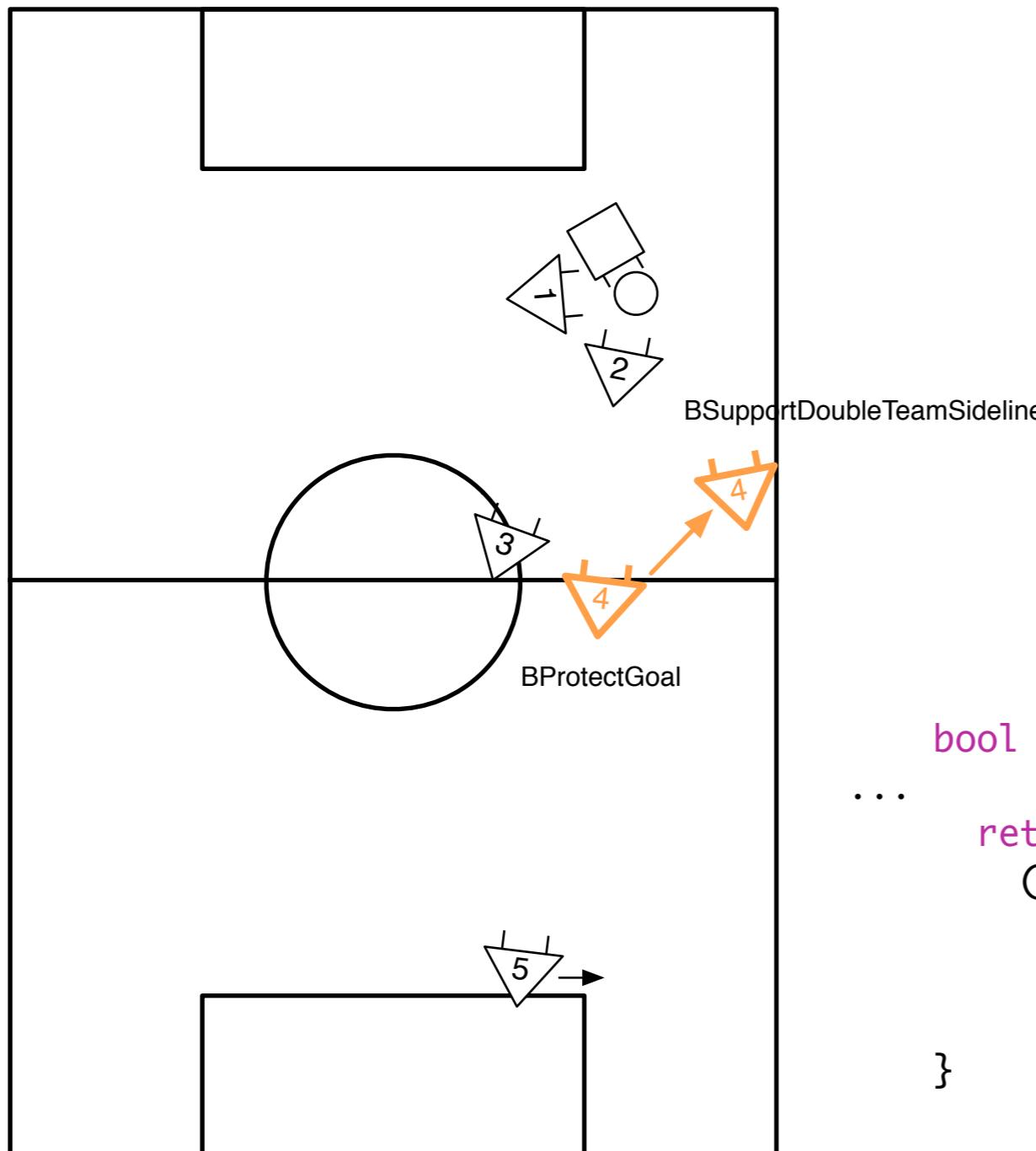


```
DriveVector getCmd(const Time& t) throw(TribotsException)
{
...
    if (WBOARD->getZonePressureRole() == "left") {
        protectPos = Vec(-0.85*field.goal_width/2.,-field.field_length/2.);
    }
    else { // "right" —
        protectPos = Vec(+0.85*field.goal_width/2.,-field.field_length/2.);
    }
...
    return BProtectGoal::getCmd(t);
}
```

- How do we realize roles?
  - assigned role is just an additional information in the „state“
  - roles are defined for each playertype individually, e.g. „goaly“ does not care about roles of „fieldplayers“
  - no separate code / option stacks for different roles
- Influence of roles on the strategy:
  - Modification of the output of a behavior. Example: pong.
  - Modification of the activation of a behavior. Example: passreceiver.

# Roles in the Tribots

## BSupportDoubleTeamSideline:



- most simple modification of the activation
- both roles (left&right) use exactly the same behavior
- only the activation depends on the position of the ball and the own role

```
bool checkInvocationCondition(const Time& t) throw() {  
    ...  
    return  
        ((WBOARD->getZonePressureRole() == "left" &&  
         ballLocation.pos.x < -500) ||  
        (WBOARD->getZonePressureRole() == "right" &&  
         ballLocation.pos.x > +500));  
}
```

## FieldPlayer

- BGameStopped
- BLeaveGoal
- BPreOwnIndirectStandardSituation
- BOwnPenalty
  - BOwnPenaltyGotoCenter
  - BOwnPenaltyGotoSpot
  - BOwnPenaltyDecide
  - BOwnPenaltyGotoKickPos
  - BOwnPenaltyWaitBeforeKick
  - BOwnPenaltyPreApproach
  - BOwnPenaltyApproach
  - BOwnPenaltyKick
- BStuckStandardSituationFP07
- BVolleyApproachAfterOwnSetPlay
- BPostOpponentStandardSituation
- BPreOpponentStandardSituation
- BStayInsideArea
- BCounterAttack
- BallOwnerStack
  - BShootEmergency
  - BFarShoot
  - BDraufhalten
  - BShoot
  - BBefreiungsschlag
  - BStuckOwnsBallConditioned
  - BPassInFrontOfGoal
  - BPassSpontaneously
  - BStuckDistanceShooter
  - BTouchBallAfterStandard
  - BallPassingReceiver
    - BOpposeBall
    - BIInterceptBallStatic
  - BEigenMove
  - BRetreatDribble
  - BShakeOffDefender
  - BWingAttack
  - BBoostBallToGoal
  - BDribbleBallStraightToGoalEvadeSideways
  - BDribbleBallToGoal
  - BComplexApproachBallFreePlay
  - BAvoidGoalieArea
  - BApproachBallAfterNonexecutedStandard
  - BApproachBallDirectlyAfterStandard
  - BIInterceptBallRL
  - BIInterceptBall
- BSupportLongPassConditioned
- BSupportNearBallConditioned
- ZonePressure
  - BDefendBall
  - BDoubleTeam
  - BSupportDoubleTeamSideline
  - BProtectGoal
  - BSupportDoubleTeamMiddle
  - BSafety
  - BPatrolFP07
  - BEmergencyStop
  - BFP07Update

## Options in Fieldplayer

BGameStopped  
BLeaveGoal  
BPreOwnIndirectStandardSituation  
BOwnPenalty  
BStuckStandardSituationFP07  
BPostOpponentStandardSituation  
BPreOpponentStandardSituation  
BStayInsideArea  
BCounterAttack  
BallOwnerStack  
BSupportLongPassConditioned  
BSupportNearBallConditioned  
ZonePressure  
BPatrolFP07  
BEmergencyStop  
BFP07Update

### Options in BallOwnerStack

BShootEmergency  
BDraufhalten  
BShoot  
BBefreiungsschlag  
BPassInFrontOfGoal  
BPassSpontaneously  
BTouchBallAfterStandard  
BallPassingReceiver  
BEigenMove  
BRetreatDribble  
BShakeOffDefender  
BWingAttack  
BBoostBallToGoal  
BDribbleBallStraightToGoalEvadeSideways  
BDribbleBallToGoal  
BComplexApproachBallFreePlay

### Options in ZonePressure

BDefendBallConditioned  
BDoubleTeamConditioned  
BSupportDoubleTeamSidelineConditioned  
BProtectGoalConditioned  
BSupportDoubleTeamMiddleConditioned  
BSafetyConditioned

■ = affected by roles

## Options in Fieldplayer

BGameStopped  
BLeaveGoal  
**BPreOwnIndirectStandardSituation**  
BOwnPenalty  
BStuckStandardSituationFP07  
BPostOpponentStandardSituation  
**BPreOpponentStandardSituation**  
BStayInsideArea  
**BCounterAttack**  
**BallOwnerStack**  
**BSupportLongPassConditioned**  
**BSupportNearBallConditioned**  
**ZonePressure**  
BPatrolFP07  
BEmergencyStop  
BFP07Update

## Options in BallOwnerStack

BShootEmergency  
BDraufhalten  
BShoot  
BBefreiungsschlag  
BPassInFrontOfGoal  
BPassSpontaneously  
**BTouchBallAfterStandard**  
BallPassingReceiver  
BEigenMove  
BRetreatDribble  
BShakeOffDefender  
BWingAttack  
BBoostBallToGoal  
BDribbleBallStraightToGoalEvadeSideways  
BDribbleBallToGoal  
BComplexApproachBallFreePlay

## Options in ZonePressure

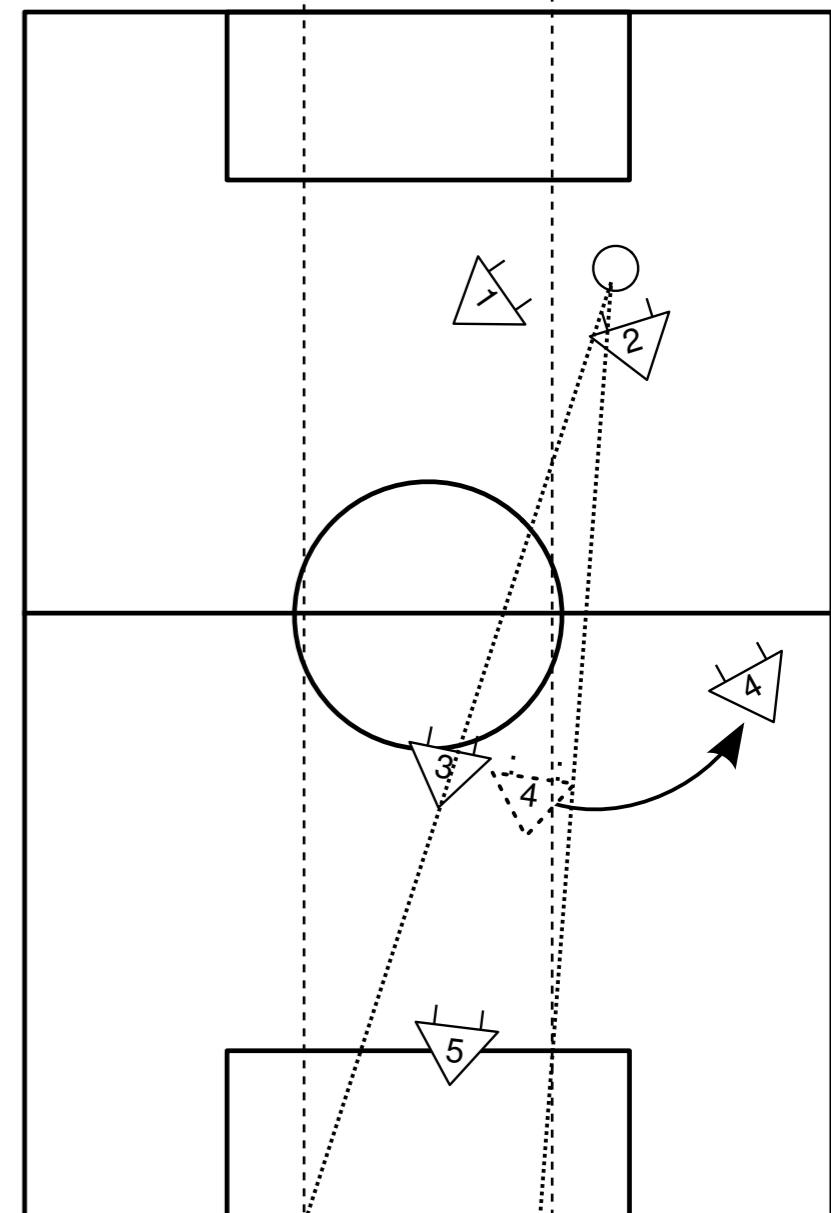
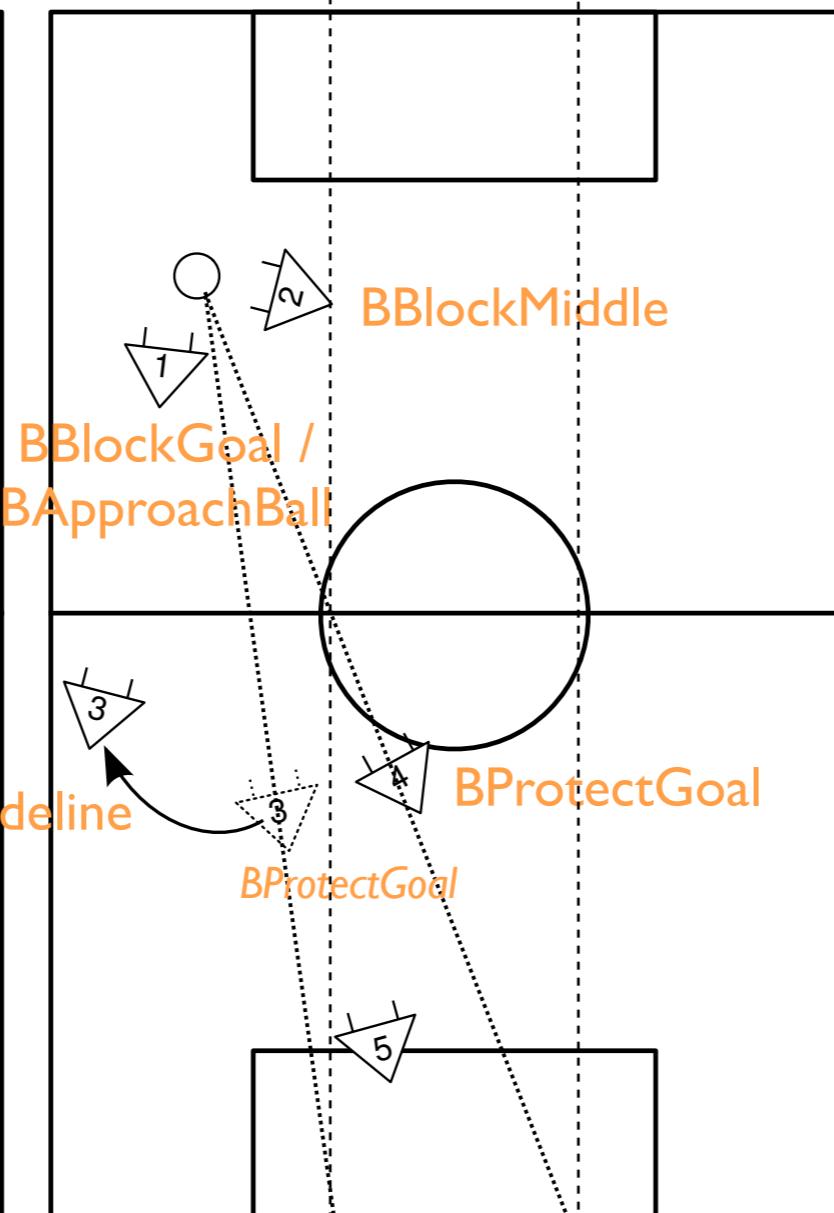
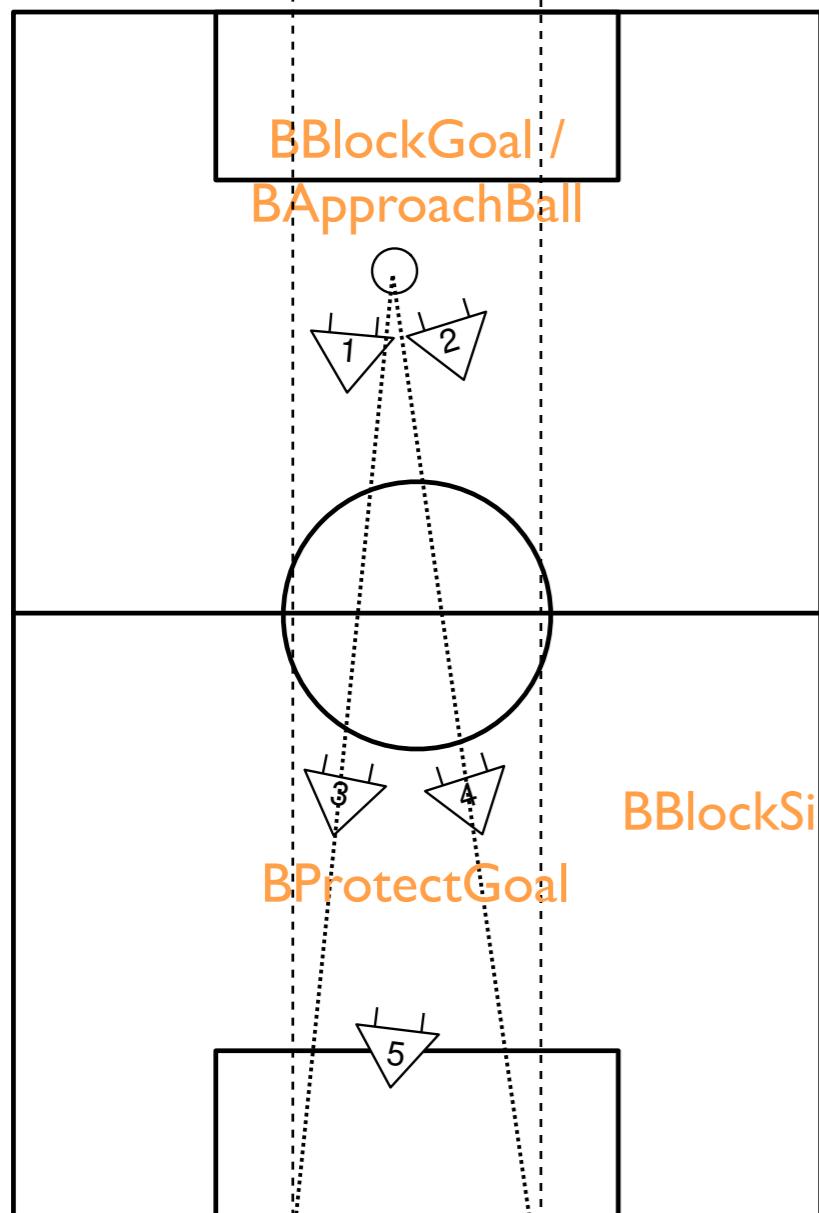
**BDefendBallConditioned**  
**BDoubleTeamConditioned**  
**BSupportDoubleTeamSidelineConditioned**  
**BProtectGoalConditioned**  
**BSupportDoubleTeamMiddleConditioned**  
**BSafetyConditioned**

# Roles in the Tribots

- Roles are heavily used in the fieldplayer stack
  - behaviors are fine-tuned on each other
  - exchangeability is restricted
- No roles IN the ball-owner-stack
  - when the ball-stack is activated, independent from it's role, every player should get the ball, advance it and (ideally) score a goal
- easy to replace / exchange submodules
- most students work on this part (more fun)

# Example: 2-2-1 Pressure Defense

decision boundaries



- Most behaviors are activated depending on the position of the ball

On ball reversal we will employ the fundamental “bump” press. Pressing the ball appropriately (see Figure 19.38). As the ball is reversed, the entire zone

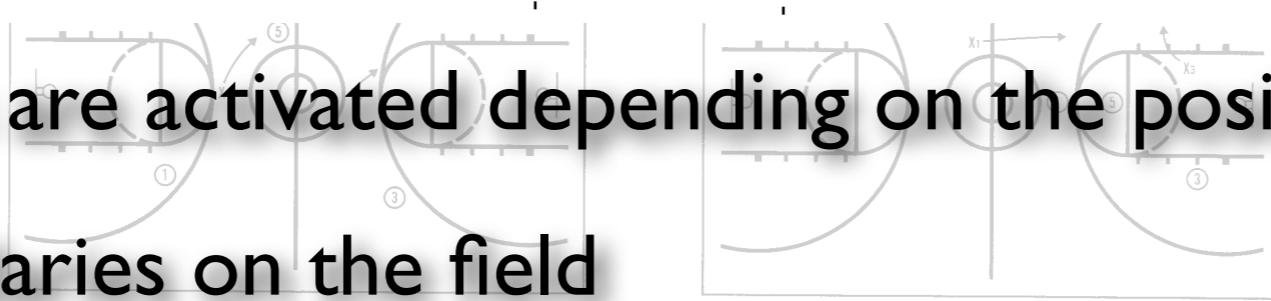


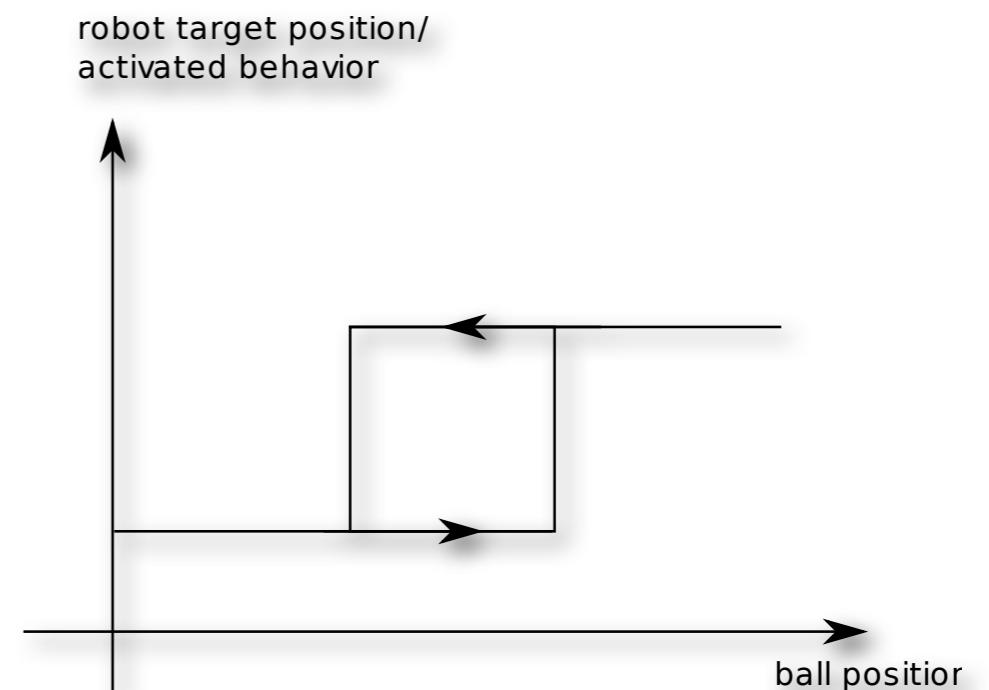
Figure 19.39

Figure 19.40

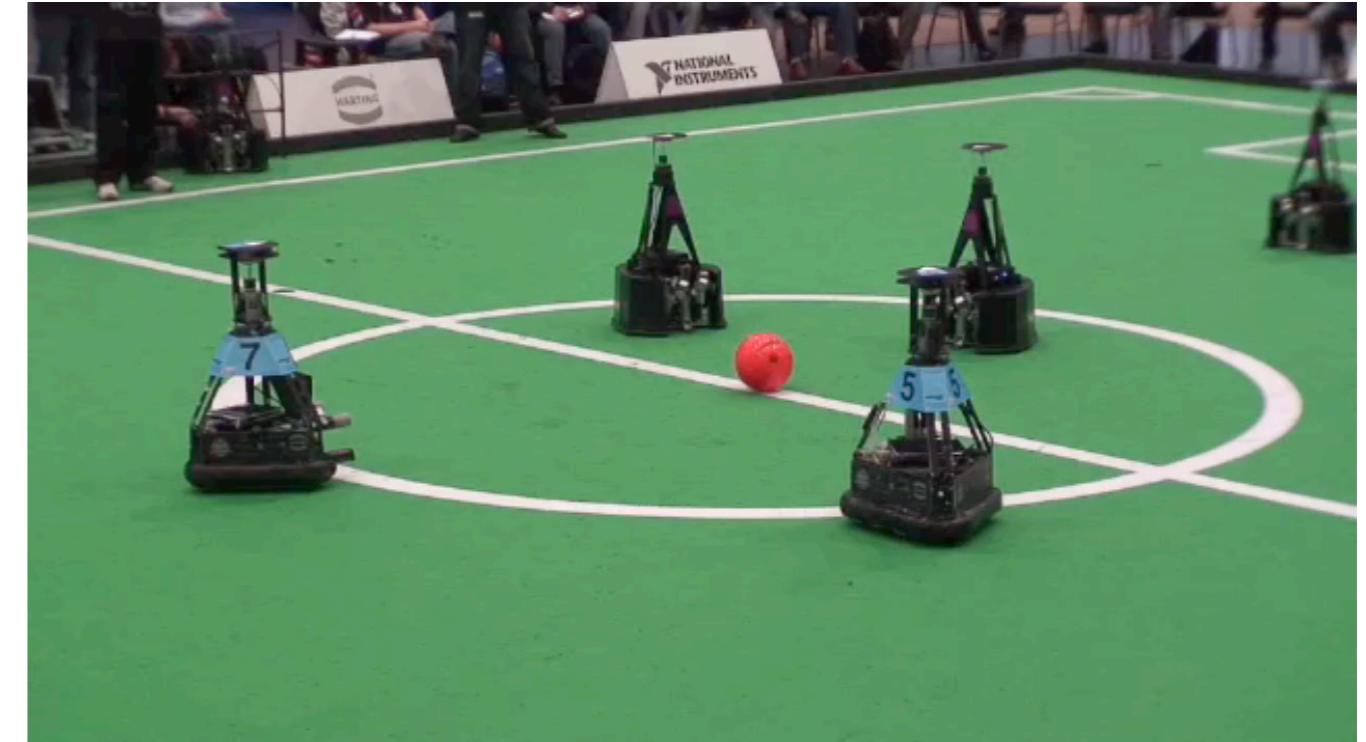
more in the lane as long as it is a good trap we tell our players that we want a good trap, not necessarily an early one.” By a “good trap” we mean an aggressive,

Depending upon the scouting report of an upcoming opponent, we may find it advisable to vary our 2-2-1 press. We can pull back and releasing some. This presents another look for our opponents to contend with. We simply will start our front-line people back toward half-court (as opposed to the foul line extended area where they would normally pick up opponents). When executed properly this version of the press is also very effective at helping us to alter and control the

- Carefully **overlapp / non-overlapp** areas of responsibility / activation
  - e.g. in the middle of the field overlapping areas of responsibility -> prefer two robots blocking the goal over none blocking the goal
- always use **hysteresis** at „decision-boundaries“ to prevent oscillating
- always **prefer** the „safe“, „game destroying“ **alternative** over the more „beautiful“ but risky alternative
  - e.g. risk a „huddle“ of several robots in order to prevent giving the opponent a chance to advance



## ● Demonstration in Simulator

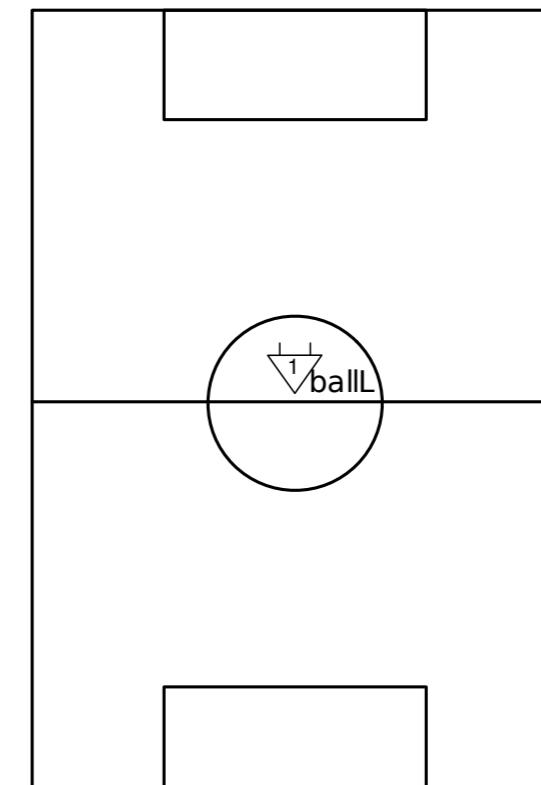
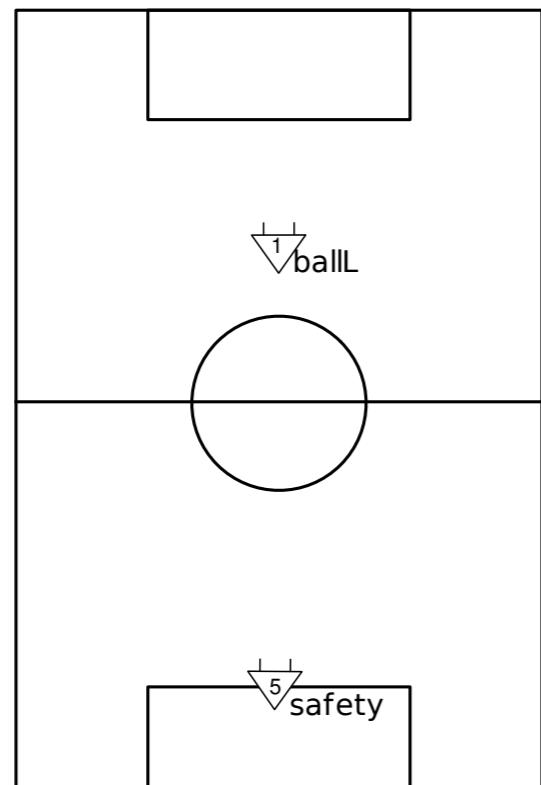
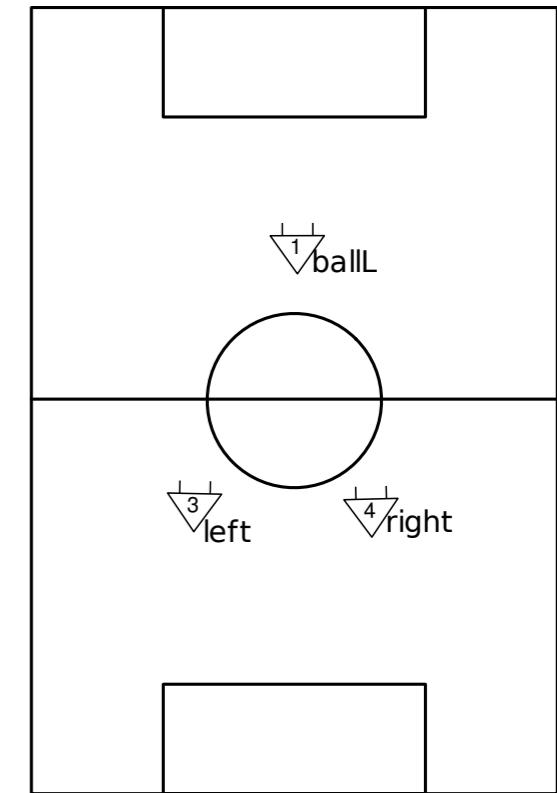
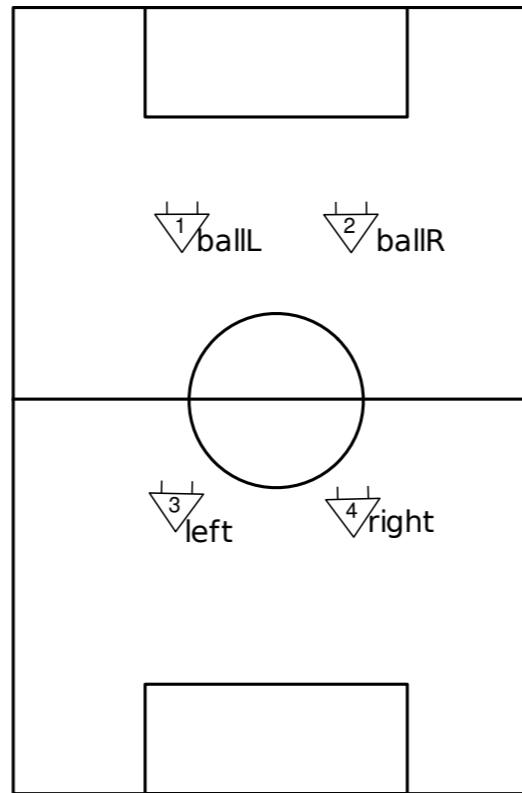
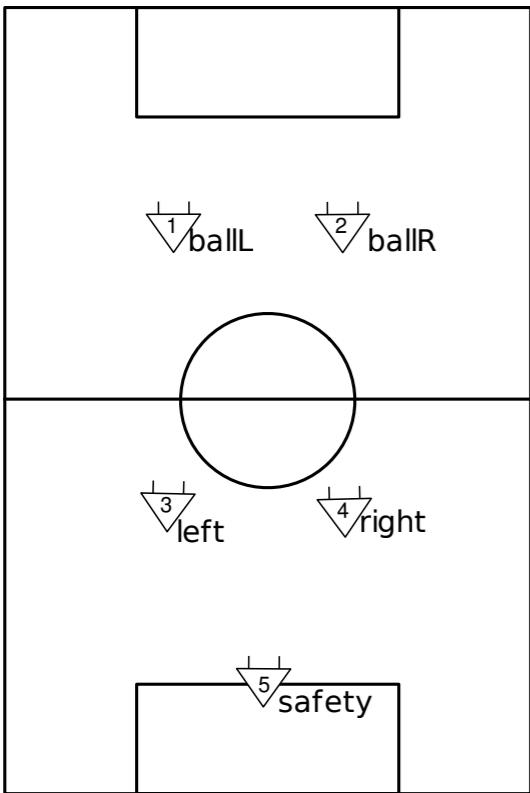


- Teamcontrol distributes the roles
- Some robots may have preferences
- Assigns necessary roles to active robots (constraint satisfaction)
- Reassignment during own standards (according to preferences)

# ,Static‘ role assignment

- TC has schemes for less than five players
- Happens often in games
- No degradation in the quality of the strategy
- Roles take over responsibilities of missing roles
- E.g. in case of a complete break-down of the communication (only one player), all players will take over „responsibilities of all roles“, thus, all robots will run amok and go to the ball, wherever it is on the field

# Missing players



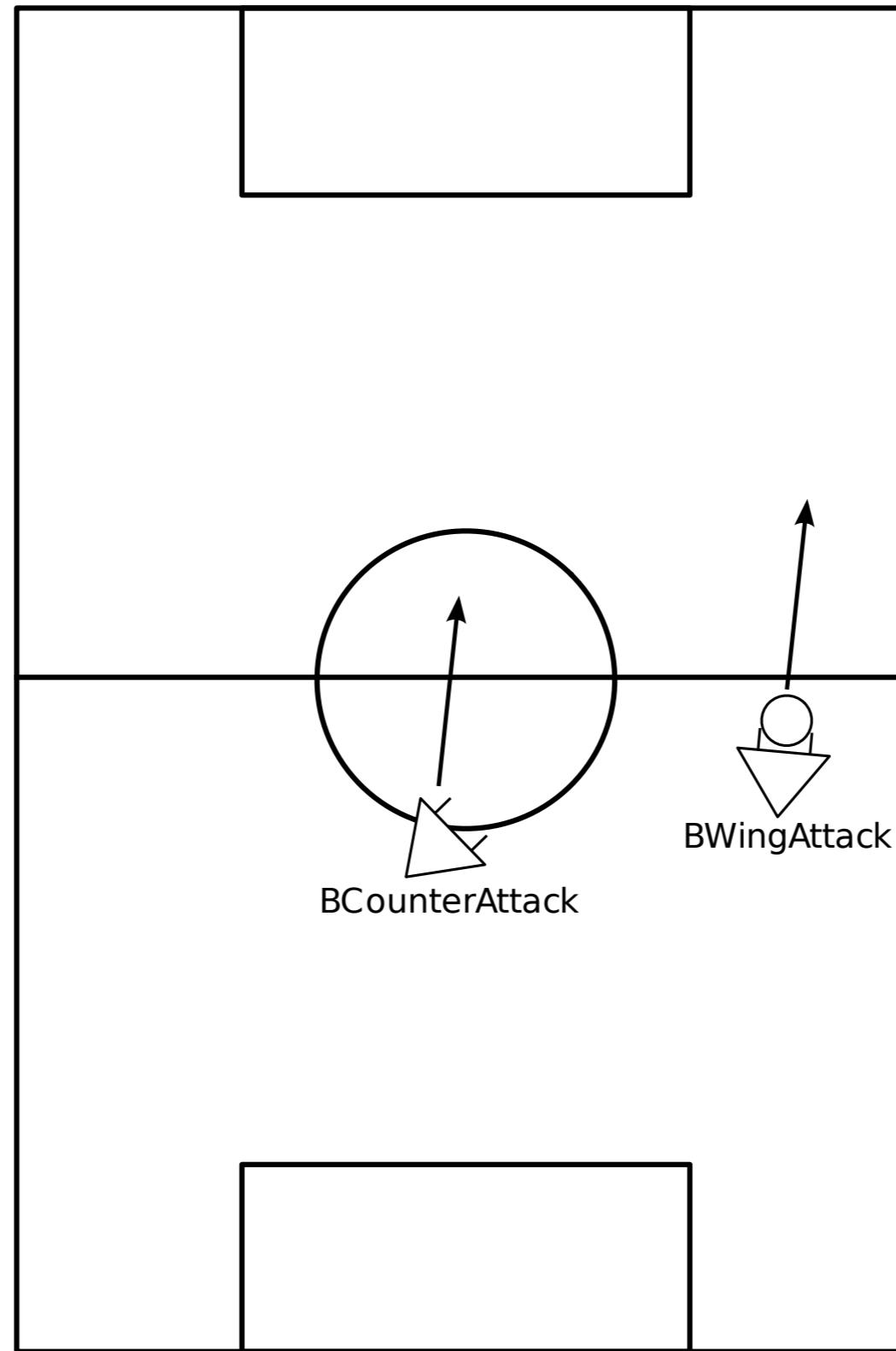
# Explicit Cooperation

- Dynamic role changes
- Defense rotations
- Dynamic Subteams / Small „Set Plays“
- Passing / Volley
- Defensive Double Team
- Determination of the „Ball Owner“
- Idea: „Dynamic Chain of Command“  
(Dynamic Hierarchy)

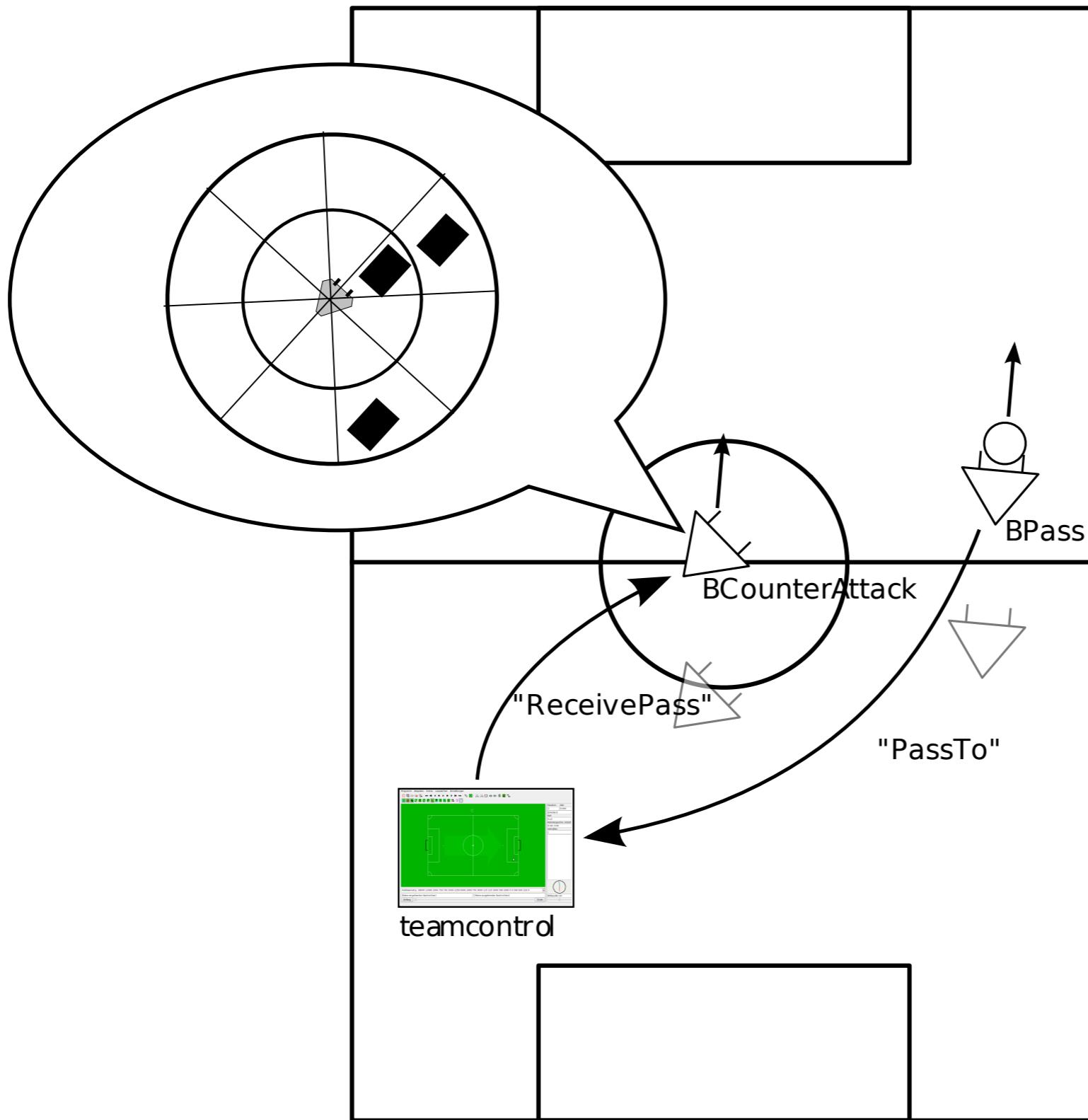
- Distributed decision making
  - latency / drop in responsiveness, conflicts
  - hard to program, hard to change later,  
hard to keep track!!! :-)
- Thus, keep all the decision making in one place

- Simple idea:
  - One master doing all the decision making
  - commanding the slaves
- Don't shout plans, shout signal words (sport!)
  - Corresponding action has been preplanned
  - again, implicit coordination but activated through communication
  - in sports: preplanning and signal words are job of the coach
- „Commander in chief“ (master) may change dynamically, depending on situation
- It's possible to have even several commanders at the same time for different aspects of the cooperative strategy

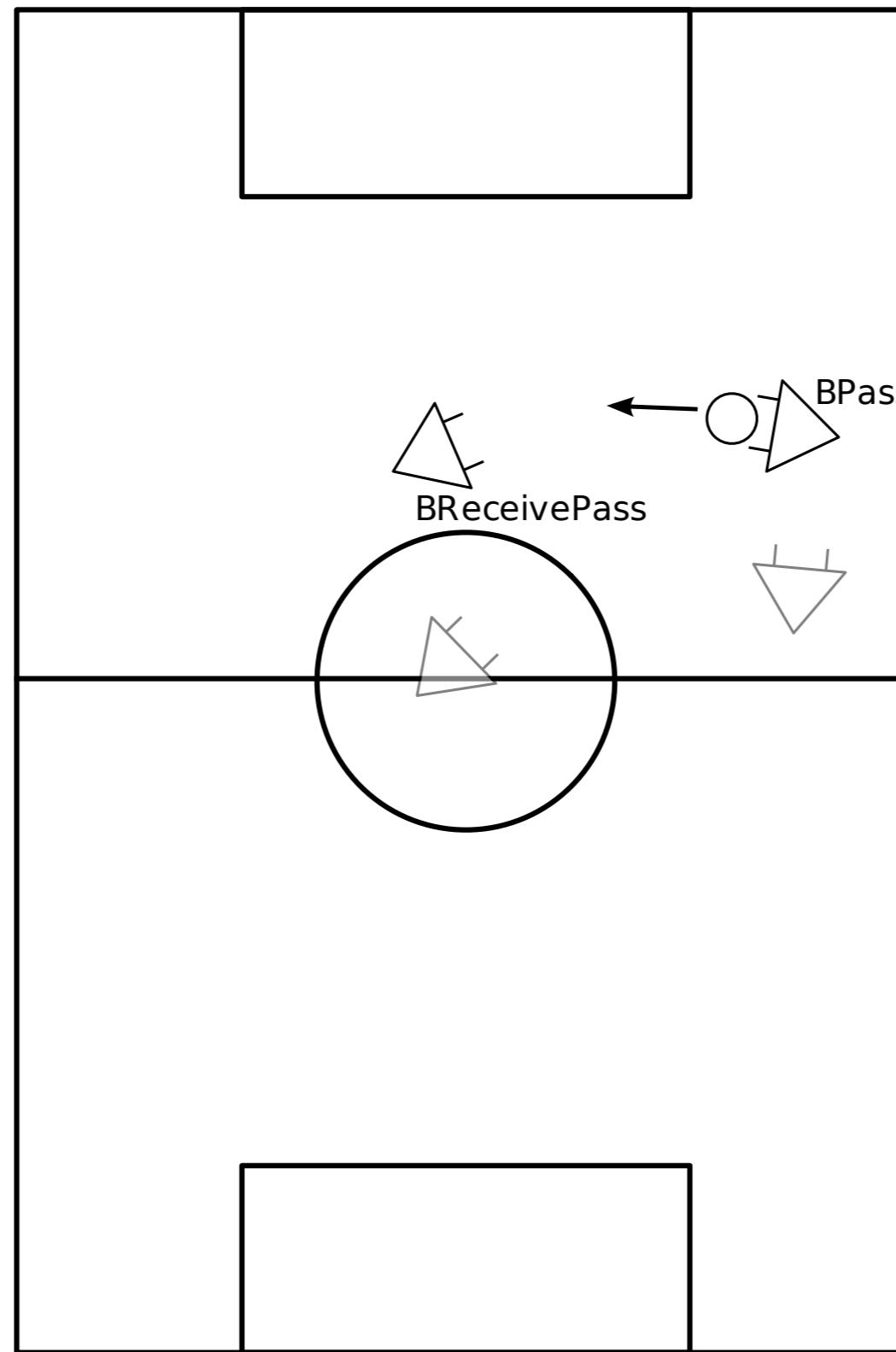
# Example: Pass



# Example: Pass



# Example: Pass



- individual robot
- the robot possessing the ball is the only robot
  - to demand a dynamic change of roles, e.g. if he is a defender and wants to become an attacker
  - to initiate a coordinated pass play by sending the receivers to their designated receiving positions.
  - generally, the ball owner is the most important robot for us

- individual robot
- the robot in the first line of defense on who's side the ball becomes the „defensive leader“ and is the only robot to
  - decide, whether the first line of defense has been overplayed along the sideline or through the gap of the DoubleTeam and thus demanding a defensive-rotation (like in real sports!!!)
  - commanding a teammate to a double-team action

- central entity, using the fused world model
- teamcontrol, or placed on one robot (e.g. lowest number)
- commands other robots to not approach the ball (by simply switching off the whole ball stack), if one robot is already close to it and in a good position

# Who's in chief?

- Problem: Fused world model on robots isn't synchronized and ambiguous
- Therefore, we need the most distinguishing criteria e.g.
  - ball possession
  - ball in area of responsibility (attached to role)

- Nevertheless ambiguities may occur
  - ball on decision boundary, noisy perceptions
  - intentionally overlapping criteria
- Our solution (in praxis we talk about a few ms):
  - Make use of client / server architecture
  - Who shouts first wins  
(discrete steps in teamcontrol)
  - If two shout at the same time, the one with the lower shirt number wins

# Implementation

- Whiteboard:
  - plain text, no restrictions
  - signal words (if I implement a new play, I invent a new signal)
- Activation: In most cases, there is exactly one behavior that asks for activation ( $IC=true$ ) when hearing one specific signal
- Decision making:
  - Central hook in Fieldplayer (e.g. used for defensive rotations)
  - Cycle callback of corresponding behavior (e.g. in Pass-behavior for the pass-play)
  - Cycle callback of activated behavior (remote decision, but encapsulated locally in only one behavior in the source code)

# Example: 2-2-1 Pressure Defense

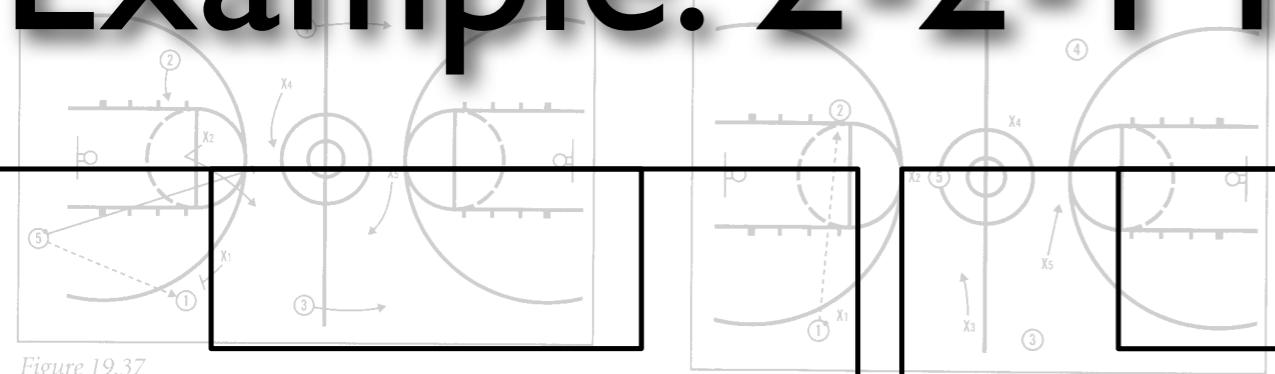


Figure 19.37

6. **Challenge every shot.** When the ball is advanced against our press and a shot is taken, it must be challenged aggressively.
7. **Rebound.** We must secure the rebound and limit second-shot opportunities.

#### *Initial Setup, Slides, and Rotations*

The ball is not denied on the inbounds (see Figure 19.37). Tight pressure is immediately applied on the ball after it is inbounded by the first-line defender on the ball side, X1. The opposite frontline guard, X2, pinches to the middle and must stay at or above the level of the ball as it is being advanced. The strong-side second-line defender, X3, plays "cat and mouse," a game of hedge and recovery always staying in the passing lane and encouraging a lob pass. The second-line weakside defender, X4, must play in tandem with and communicate with the deep man, X5. X5 will move to the strong side to defend the deep "alleyway" against any lob pass to a front-court offensive player. X4 will quickly rotate back to the basket. It is important to note that any pass to the middle is greatly discouraged. We must *keep the ball out of the middle* for our press to be effective. The ball must go around our press, never through it.

We do not discourage the reversal pass because we do not believe that will hurt us if our rotation is good. After our first trap we will rotate, adjust, and recover to retrap, a unique feature of our 2-2-1, which has contributed significantly to the success of our press. Many teams trap once before pulling their press back. We will trap a number of times in a single possession before taking off the press. Another point we emphasize is that we do not believe the long diagonal pass will hurt us simply because we all disagree that it does. It is very difficult to throw by placing good pressure on the ball handler.

On a ball reversal we will employ the fundamental "bully" principle and make the appropriate rotation (see Figure 19.38). As the ball is inbounded, X1 rotates

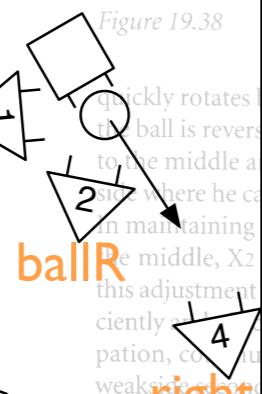
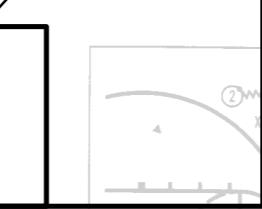


Figure 19.38

quickly rotates back to our regular 2-2-1 alignment. As the ball is reversed from 1 to 2, X1 immediately pinches to the middle and "pumps" X2 back over to the strong side where he can pressure the ball and force it sideline. In maintaining our objective of keeping the ball out of the middle, X2 must hold for X1 momentarily before this adjustment is made. To execute this movement efficiently and effectively requires good recognition, anticipation, communication, and hard work. X3, now the weak-side second-line defender, must drop back toward the middle into what we call the "short middle" position. X4 is now the strong-side second-line defender, applying good "hedge and recover" principles and attempting to pull 2 into a sideline trap. X5 rotates back to the basket for protection in what we call the "deep middle" position.

This is a good example of our "1-4 Principle" at work. Initially X1 pressured the ball while X2, X3, X4, and X5 essentially formed a "box" of help behind him ready to react. On the reversal X2 now pressures the ball at the point of our "1-4 Principle," with X1, X3, X4, and X5 providing help behind him.

We are always trying to spring our traps in the alleys along either sideline (see Figure 19.39). It is important to note that we are not concerned with where the trap is



(CONTINUED)

Figure 19.39

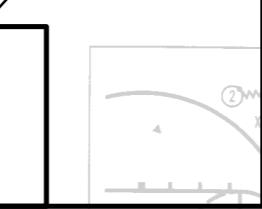


Figure 19.39

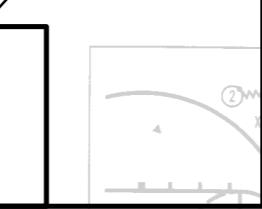


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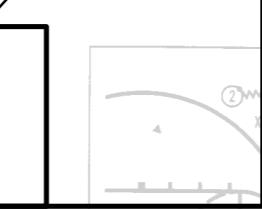


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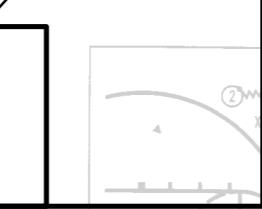


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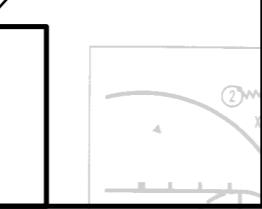


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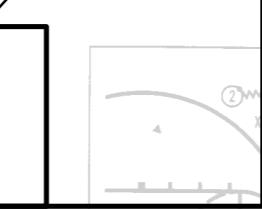


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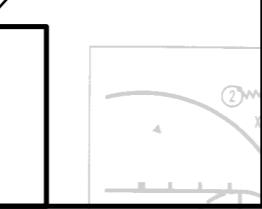


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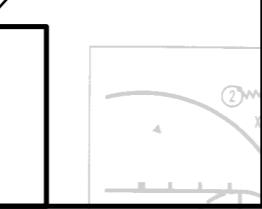


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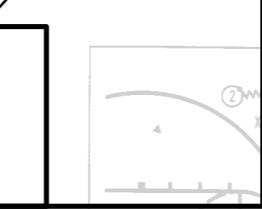


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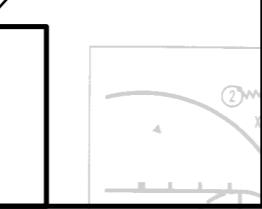


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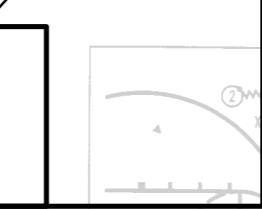


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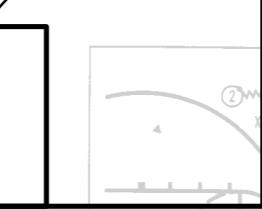


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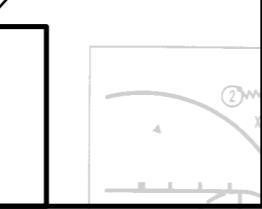


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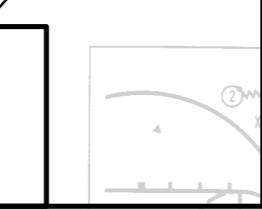


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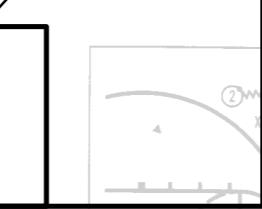


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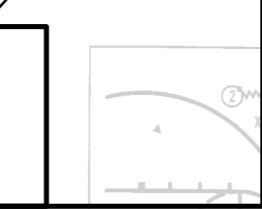


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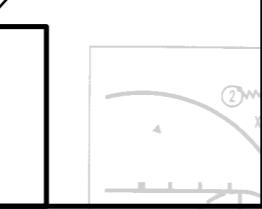


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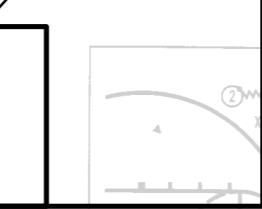


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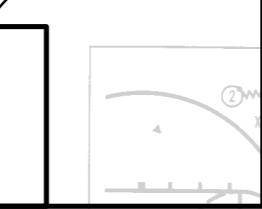


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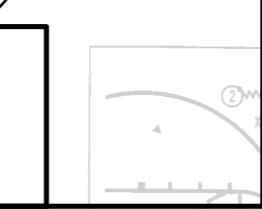


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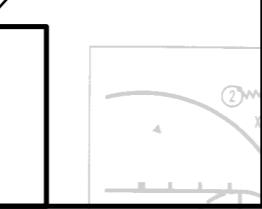


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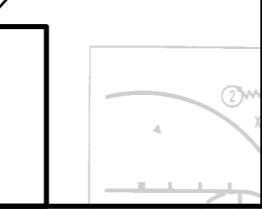


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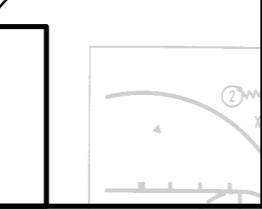


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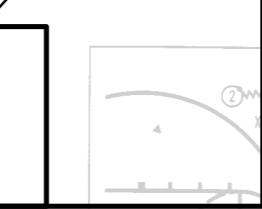


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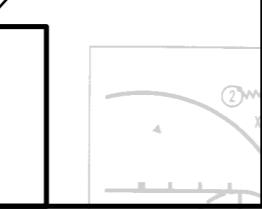


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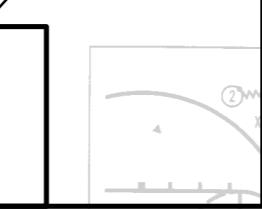


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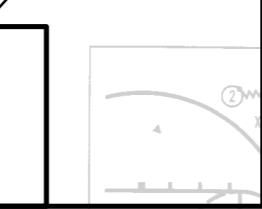


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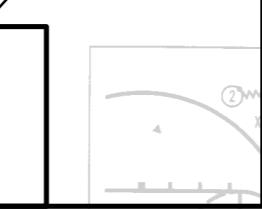


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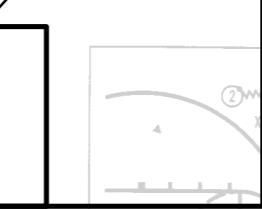


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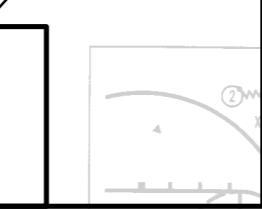


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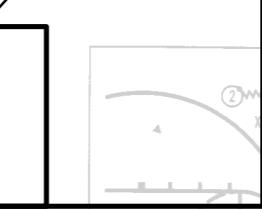


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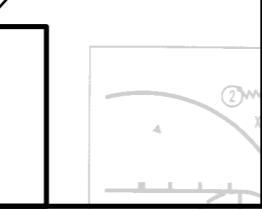


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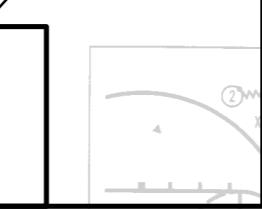


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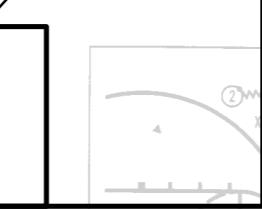


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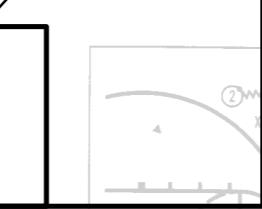


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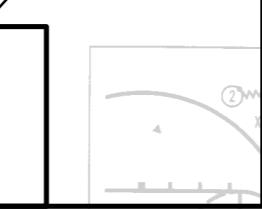


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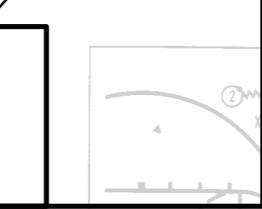


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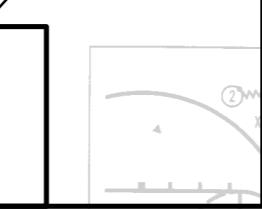


Figure 19.39

# Example: 2-2-1 Pressure Defense

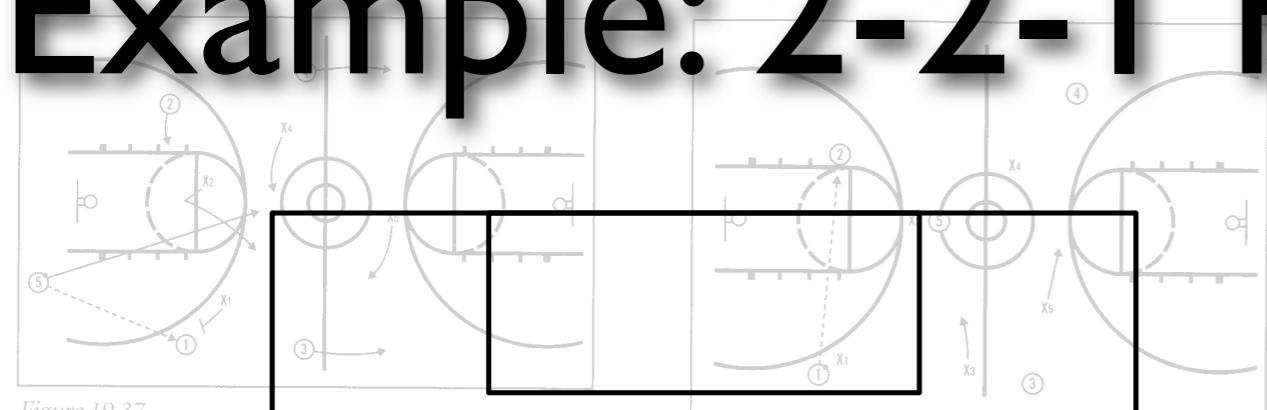


Figure 19.37

6. *Challenge every shot.* When the ball is advanced against our press and a shot is taken, it must be challenged aggressively.
  7. *Rebound.* We must secure the rebound and limit second-shot opportunities.

## *Initial Setup, Slides, and Rotations*

The ball is not denied on the inbounds (see Figure 19.37). Tight pressure is immediately applied on the ball after it is inbounded by the first-line defender on the ball side, X1. The opposite frontline guard, X2, pinches to the middle and must stay at or above the level of the ball as it is being advanced. The strong-side second-line defender, X3 plays “cat and mouse,” a game of hedge and recovery always staying in the passing lane and encouraging a lob pass. The second-line weakside defender, X4, must play in tandem with and communicate with the deep man, X5. X5 will move to the strong side to defend the deep “alleyway” against any lob pass to a front-court offensive player. X4 will quickly rotate back to the basket. It is important to note that any pass to the middle is greatly discouraged. We must *keep the ball out of the middle* for our press to be effective. The ball must go around our press, never through it.

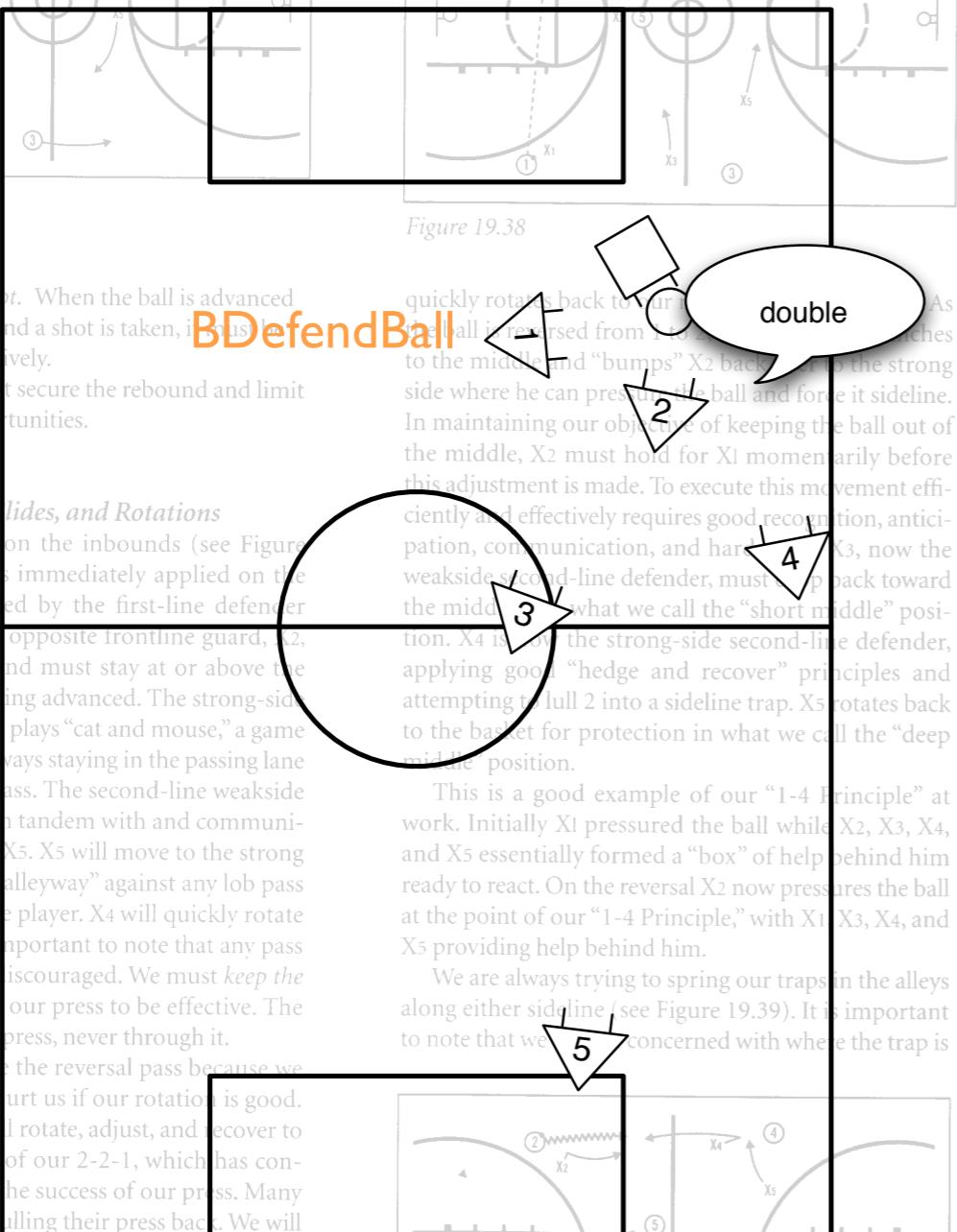
**Ball** quickly rotates back to draw the ball away from X1. As the ball is reversed from X1 to X2, it reaches the middle and "bumps" X2 back to the strong side where he can press the ball and force it sideline. In maintaining our objective of keeping the ball out of the middle, X2 must hold for X1 momentarily before this adjustment is made. To execute this movement efficiently and effectively requires good recognition, anticipation, communication, and hard work. X3, now the weakside second-line defender, must step back toward the middle in what we call the "short middle" position. X4 is on the strong-side second-line defender, applying good "hedge and recover" principles and attempting to pull X2 into a sideline trap. X5 rotates back to the basket for protection in what we call the "deep middle" position.

This is a good example of our “1-4 Principle” at work. Initially X1 pressured the ball while X2, X3, X4, and X5 essentially formed a “box” of help behind him ready to react. On the reversal X2 now pressures the ball at the point of our “1-4 Principle,” with X1, X3, X4, and X5 providing help behind him.

We are always trying to spring our traps in the alleys along either sideline (see Figure 19.39). It is important to note that we are concerned with where the trap is

We do not discourage the reversal pass because we do not believe that will hurt us if our rotation is good. After our first trap we will rotate, adjust, and recover to retrap, a unique feature of our 2-2-1, which has contributed significantly to the success of our press. Many teams trap once before pulling their press back. We will trap a number of times in a single possession before taking off the press. Another point we emphasize is that we do not believe the long diagonal pass will hurt us simply because we will disrupt that pass. It is very difficult to throw by placing good pressure on the ball handler.

On a ball reversal we will employ the fundamental “burst” principle and make the immediate return (see Figure 14.18). A full ball is reversed to the entire 20



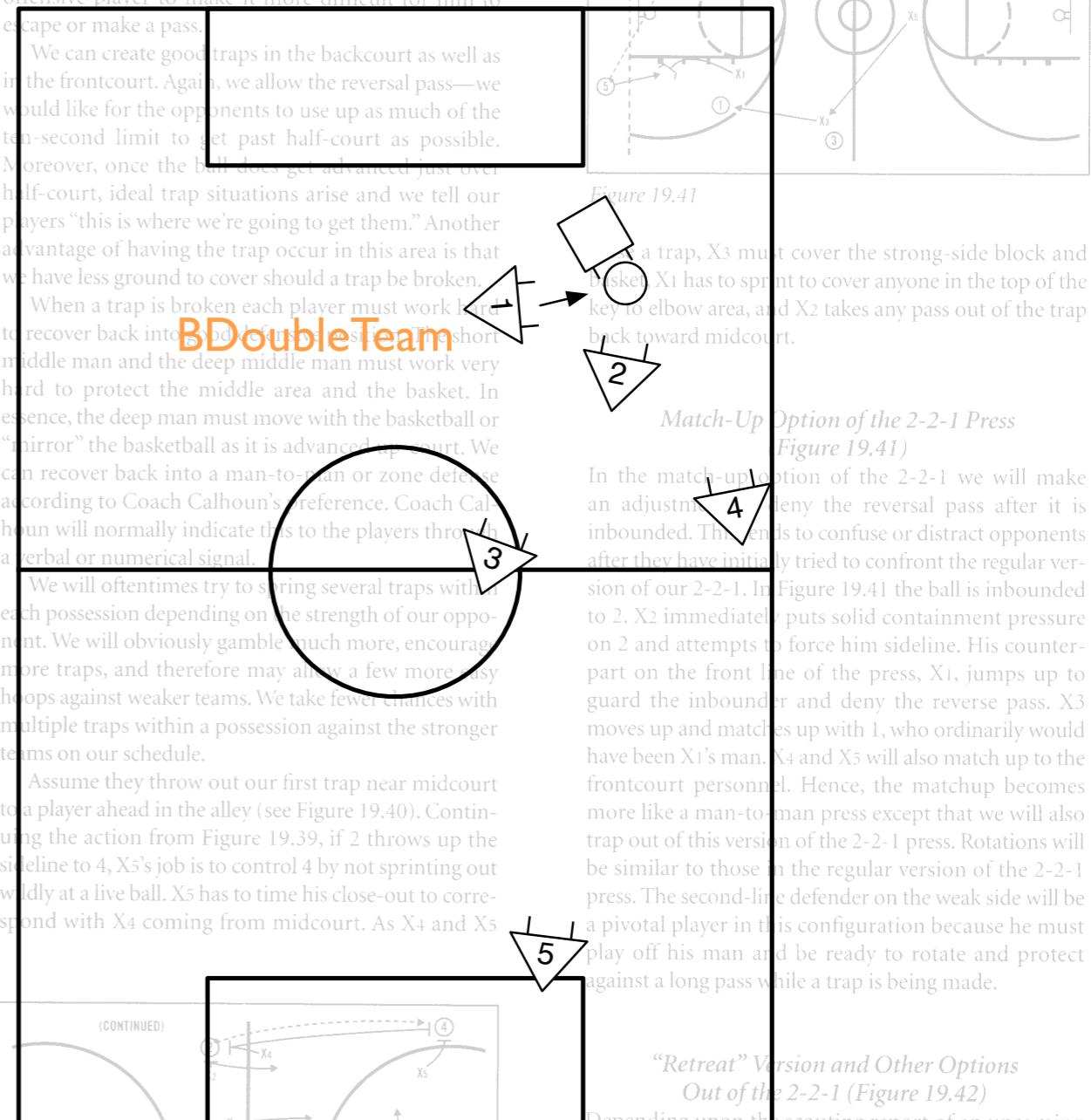
make in the air as long as it is a good trap. We tell our players that we want a good trap, not necessarily an early one." By a "good trap" we mean an aggressive, solidly executed trap in which our defenders have their hands up, put pressure on the ball, and *body up* to the offensive player to make it more difficult for him to escape or make a pass.

We can create good traps in the backcourt as well as in the frontcourt. Again, we allow the reversal pass—we would like for the opponents to use up as much of the ten-second limit to get past half-court as possible. Moreover, once the ball does get advanced just over half-court, ideal trap situations arise and we tell our players “this is where we’re going to get them.” Another advantage of having the trap occur in this area is that we have less ground to cover should a trap be broken.

**BDoubleTeam**

We will oftentimes try to spring several traps with each possession depending on the strength of our opponent. We will obviously gamble much more, encourage more traps, and therefore may allow a few more easy triumphs against weaker teams. We take fewer chances with multiple traps within a possession against the stronger teams on our schedule.

Assume they throw out our first trap near midcourt to a player ahead in the alley (see Figure 19.40). Continuing the action from Figure 19.39, if 2 throws up the sideline to 4, X<sub>5</sub>'s job is to control 4 by not sprinting out wildly at a live ball. X<sub>5</sub> has to time his close-out to correspond with X<sub>4</sub> coming from midcourt. As X<sub>4</sub> and X<sub>5</sub>



*Figure 19.41*

a trap, X3 must cover the strong-side block and (skew) X1 has to sprint to cover anyone in the top of the key to elbow area, and X2 takes any pass out of the trap back toward midcourt.

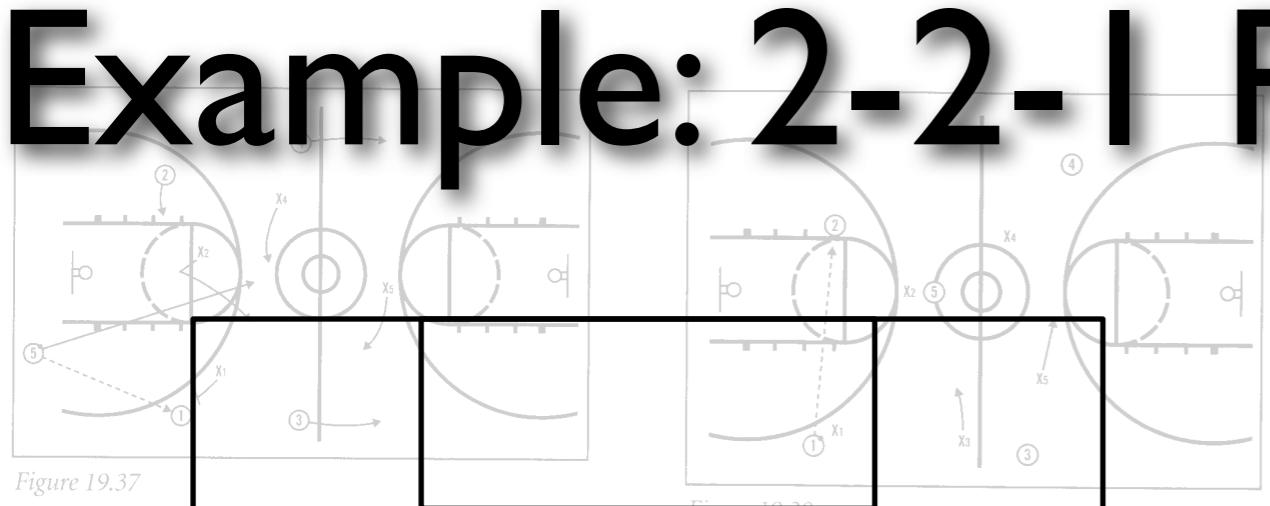
### *Match-Up Option of the 2-2-1 Press Figure 19.41)*

In the match-up option of the 2-2-1 we will make an adjustment to deny the reversal pass after it is inbounded. This tends to confuse or distract opponents after they have initially tried to confront the regular ver-

tion of our 2-2-1. In Figure 19.41 the ball is inbounded to 2. X<sub>2</sub> immediately puts solid containment pressure on 2 and attempts to force him sideline. His counterpart on the front line of the press, X<sub>1</sub>, jumps up to guard the inbounder and deny the reverse pass. X<sub>3</sub> moves up and matches up with 1, who ordinarily would have been X<sub>1</sub>'s man. X<sub>4</sub> and X<sub>5</sub> will also match up to the frontcourt personnel. Hence, the matchup becomes more like a man-to-man press except that we will also trap out of this version of the 2-2-1 press. Rotations will be similar to those in the regular version of the 2-2-1 press. The second-line defender on the weak side will be a pivotal player in this configuration because he must play off his man and be ready to rotate and protect against a long pass while a trap is being made.

### *“Retreat” Version and Other Options Out of the 2-2-1 (Figure 19.42)*

Depending upon the scouting report of an upcoming opponent, we may find it advisable to vary our 2-2-1 pressure by pulling it back and retreating some. This is often done when we feel the other team's best player is on the foul line or in the area where we intend to press. We simply will start our front line people back toward half-court (as opposed to the foul line extended area where they would normally pick up opponents). When executed properly this version of the press is also very effective in causing the ball handler and control the ball behavior.



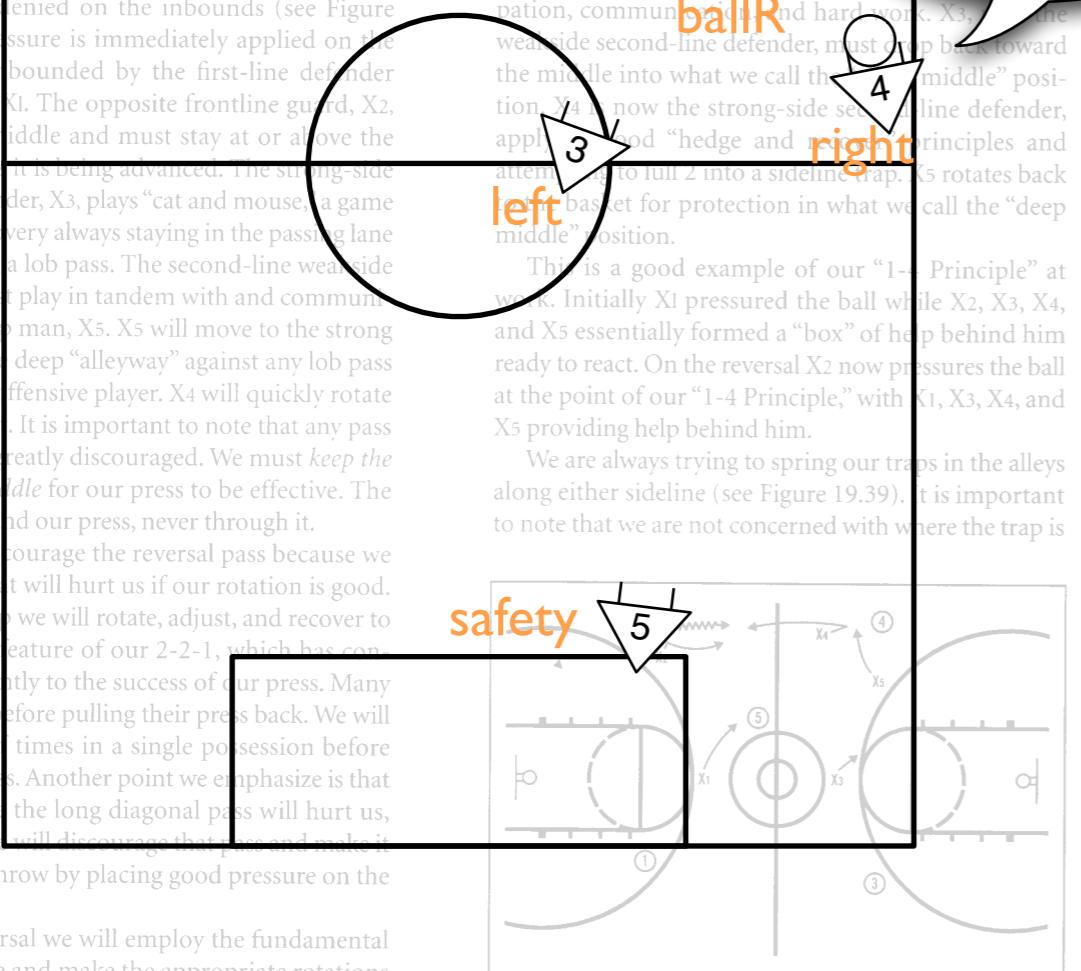
6. *Challenge every shot.* When the ball is advanced against our press and a shot is taken, it must be challenged aggressively.
7. *Rebound.* We must secure the rebound and limit second-shot opportunities.

#### *Initial Setup, Slides, and Rotations*

The ball is not denied on the inbounds (see Figure 19.37). Tight pressure is immediately applied on the ball after it is inbounded by the first-line defender on the ball side, X1. The opposite frontline guard, X2, pinches to the middle and must stay at or above the level of the ball as it is being advanced. The strong-side second-line defender, X3, plays “cat and mouse,” a game of hedge and recover, always staying in the passing lane and encouraging a lob pass. The second-line weak-side defender, X4, must play in tandem with and communicate with the deep man, X5. X5 will move to the strong side to defend the deep “alleyway” against any lob pass to a front-court offensive player. X4 will quickly rotate back to the basket for protection in what we call the “deep middle” position.

This is a good example of our “1-4 Principle” at work. Initially X1 pressured the ball while X2, X3, X4, and X5 essentially formed a “box” of help behind him ready to react. On the reversal X2 now pressures the ball at the point of our “1-4 Principle,” with X1, X3, X4, and X5 providing help behind him.

We are always trying to spring our traps in the alleys along either sideline (see Figure 19.39). It is important to note that we are not concerned with where the trap is



We do not discourage the reversal pass because we do not believe that it will hurt us if our rotation is good. After our first trap we will rotate, adjust, and recover to retrap, a unique feature of our 2-2-1, which has contributed significantly to the success of our press. Many teams trap once before pulling their press back. We will trap a number of times in a single possession before taking off the press. Another point we emphasize is that we do not believe the long diagonal pass will hurt us, simply because we will discourage that pass and make it very difficult to throw by placing good pressure on the ball handler.

On a ball reversal we will employ the fundamental “bump” principle and make the appropriate rotations (see Figure 19.38). As the ball is reversed, the entire zone

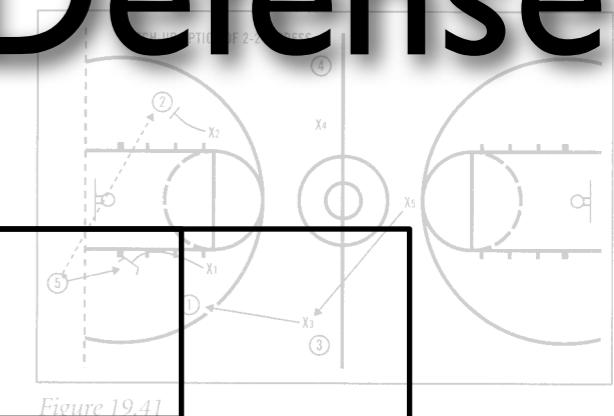
move in the same direction. It is a good trap to tell our players that we want a good trap, not necessarily an early one.” By a “good trap” we mean an aggressive, solidly executed trap in which our defenders have their hands up, put pressure on the ball, and *body up* to the offensive player to make it more difficult for him to escape or make a pass.

We can create good traps in the backcourt as well as in the frontcourt. Again, we allow the reversal pass—we would like for the opponents to use up as much of the ten-second limit to get past half-court as possible. Moreover, once the ball does get advanced just over half-court, ideal trap situations arise and we tell our players “this is where we’re going to get them.” Another advantage of having the trap occur in this area is that we have less ground to cover should a trap be broken.

When a trap is broken each player must work hard to recover back into good defensive position. The short middle man and the deep middle man must work very hard to protect the middle area and the basket. In essence, the deep man must move with the basketball or “mirror” the basketball as it is advanced up-court. We can recover back into a man-to-man or zone defense according to Coach Calhoun’s preference. Coach Calhoun will normally indicate this to the players through a verbal or numerical signal.

We will oftentimes try to spring several traps within each possession depending on the strength of our opponent. We will obviously gamble much more, encourage more traps, and therefore may allow a few more easy hoops against weaker teams. We take fewer chances with multiple traps within a possession against the stronger teams on our schedule.

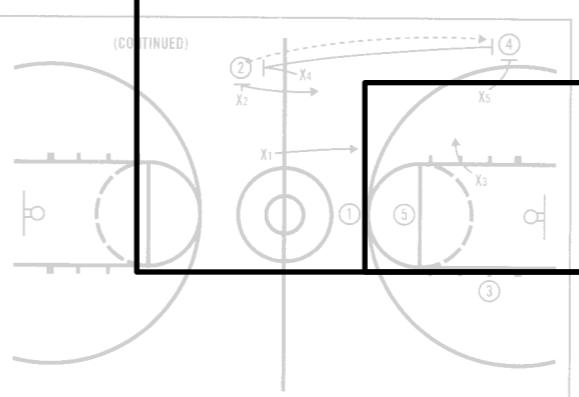
Assume they throw out our first trap near midcourt to a player ahead in the alley (see Figure 19.40). Continuing the action from Figure 19.39, if 2 throws up the sideline to 4, 5’s job is to control 4 by not sprinting out wildly at a live ball. X5 has to time his close-out to correspond with 4 coming from midcourt. As X4 and X5



close a trap, X3 must cover the strong-side block and basket, X1 has to sprint to cover anyone in the top of the key to elbow area, and X2 takes any pass out of the trap back toward midcourt.



In the right option of the 2-2-1 we will make an adjustment to deny the ball pass after it is inbounded. This tends to confuse and distract opponents after they have initially tried to confront the regular version of our 2-2-1. In Figure 19.41 when the ball is inbounded, 1 immediately puts solid containment pressure on 2 and attempts to force him sideways. His counterpart on the front line of the press, X1, jumps up to guard the inbounder and deny the reverse pass. X3 moves up and matches up with 1, who ordinarily would have been X1’s man. X4 and X5 will also match up to the frontcourt personnel. Hence, the matchup becomes more like a man-to-man press except that we will also press. Rotations will be similar to those in the regular version of the 2-2-1 press. The second-line defender on the weak side will be a pivotal player in this configuration because he must play off his man and be ready to rotate and protect against a long pass while a trap is being made.



*“Safety” Version and Other Options Out of the 2-2-1 (Figure 19.42)*  
Depending upon the scouting report of an upcoming opponent, we may find it advisable to vary our 2-2-1 pressure by pulling it back and retreating some. This presents another look for our opponents to contend with. We simply will start our front-line people back toward half-court (as opposed to the foul line extended area where they would normally pick up opponents). When executed properly this version of the press is also very effective at helping us to alter and control the

# Example: 2-2-1 Pressure Defense

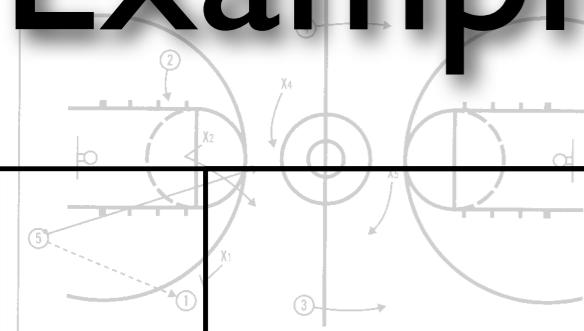


Figure 19.37

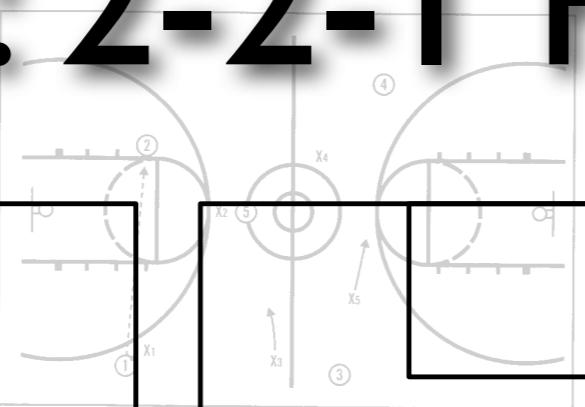


Figure 19.38

6. **Challenge every shot.** When the ball is advanced against our press and a shot is taken, it must be challenged aggressively.
7. **Rebound.** We must secure the rebound and limit second-shot opportunities.



quickly rotates back to our regular 2-2-1 alignment. As the ball is reversed from 1 to 2, X1 immediately pinches to the middle and “bumps” X2 back over to the strong side where he can pressure the ball and force it sideline. In maintaining our objective of keeping the ball out of the middle, X2 must hold for X1 momentarily before this adjustment is made. To execute this movement efficiently requires good recognition, anticipation, communication, and hard work. X3, now the weakside second-line defender, must drop back toward the middle to what we call the “short middle” position. X4 is now the strong-side second-line defender, applying good “hedge and recover” principles and attempting to pull 2 into a sideline trap. X5 rotates back to the basket for protection in what we call the “deep middle” position.

This is a good example of our “1-4 Principle” at work. Initially X1 pressured the ball while X2, X3, X4, and X5 essentially formed a “box” of help behind him ready to react. On the reversal X2 now pressures the ball at the point of our “1-4 Principle,” with X1, X3, X4, and X5 providing help behind him.

We are always trying to spring our traps in the alleys along either sideline (see Figure 19.39). It is important to note that we are not concerned with where the trap is

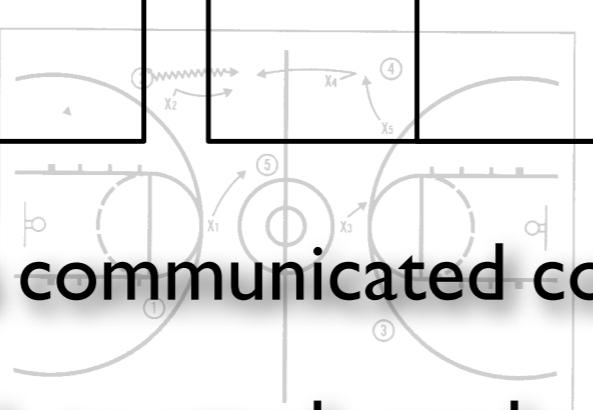


Figure 19.39

## Initial Setup, Slides, and Rotations

The ball is not denied on the inbounds (see Figure 19.37). Tight pressure is immediately applied to the ball side, it is inbounded by the first line defender on the ball side, X1. The opposite frontline guard, X2, pinches to the middle and must stay at or above the level of the ball as it is being advanced. The strong-side second-line defender, X3, plays “cut and move,” a game of hedge and recovery always staying in the passing lane and encouraging a lob pass. The second-line weakside defender, X4, must play in tandem with and communicate with the deep man, X5. X5 will move to the strong side to defend the deep “alleyway” against any lob pass to a front-court offensive player. X4 will quickly rotate back to the basket. It is important to note that any pass to the middle is greatly discouraged. We must *keep the ball out of the middle* for our press to be effective.

*ball must go around our press, never through it.*

We do not discourage the reversal pass because we do not believe that will hurt us if our rotation is good. After our first trap we will rotate, adjust, and recover to retrap, a unique feature of our 2-2-1, which has contributed significantly to the success of our press. Many teams trap once before pulling their press back. We will trap a number of times in a single possession before taking off the press. Another point we emphasize is that we do not believe the long diagonal pass will hurt us simply because we will have rotated and adjusted so it is very difficult to throw by placing good pressure on the ball handler.

On a ball reversal we will employ the fundamental “bump” principle and only the proper rotations (see Figure 19.37). At the half-court point (Figure 20.1)

● **ball possession is communicated constantly in every cycle**

● **teammates switch to attack mode and activate corresponding behaviors**

move in the lane as long as it is a good trap. We tell our players that we want a good trap, not necessarily an early one.” By a “good trap” we mean an aggressive, solidly executed trap in which our defenders have their hands up, put pressure on the ball, and *body up* to the offensive player to make it more difficult for him to escape or make a pass.

We can create good traps in the backcourt as well as in the frontcourt. Again, we allow the reversal pass—we would like for the opponents to use up as much of the ten-second limit to get past half-court as possible. Moreover, once the ball does get advanced just over half-court, ideally we want to trap it again and we tell our players “this is what you want them to do.” Another advantage of having a good trap in the backcourt is that we have less ground to cover and the trap can be broken.

When a trap is broken, each player must work hard to recover back into a good defensive position. The short middle man and the deep middle man must work very hard to protect the middle area and the basket. In essence, the deep man must move with the basketball or “mirror” the basketball as it advanced up-court. We can recover back into a man-to-man or zone defense according to Coach Calhoun’s preference. Coach Calhoun will normally indicate this to the players through a vertical or numerical signal.

We will oftentimes try to spring several traps within each possession depending on the strength of our opponent. We will obviously gamble much more, encourage more traps, and therefore may allow a few more easy hoops against weaker teams. We take fewer chances with multiple traps within a possession against the stronger teams on our schedule.

Assume they throw out our first trap near midcourt to a player ahead in the alley (see Figure 19.40). Continuing the action from Figure 19.39, if 2 throws up the sideline to 4, X5’s job is to control 4 by not sprinting out with at a live ball. X5 has to time his close-out to correspond with X4 coming from midcourt. As X4 and X5

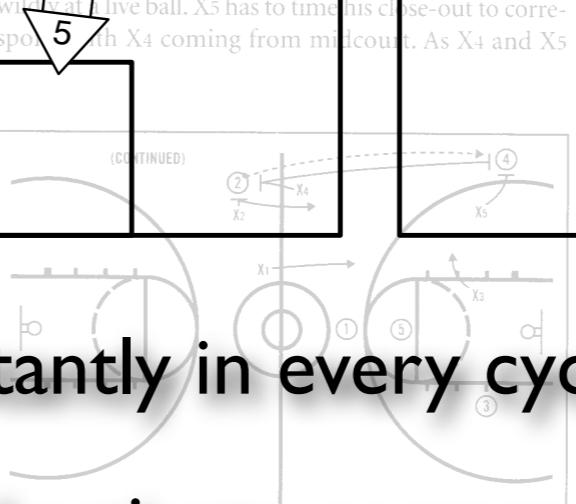


Figure 19.40

Figure 19.41

**possessBall**

**BSupportMiddle**

**possessBall**

*Match-Up Option of the 2-2-1 Press*  
*(Figure 19.41)*

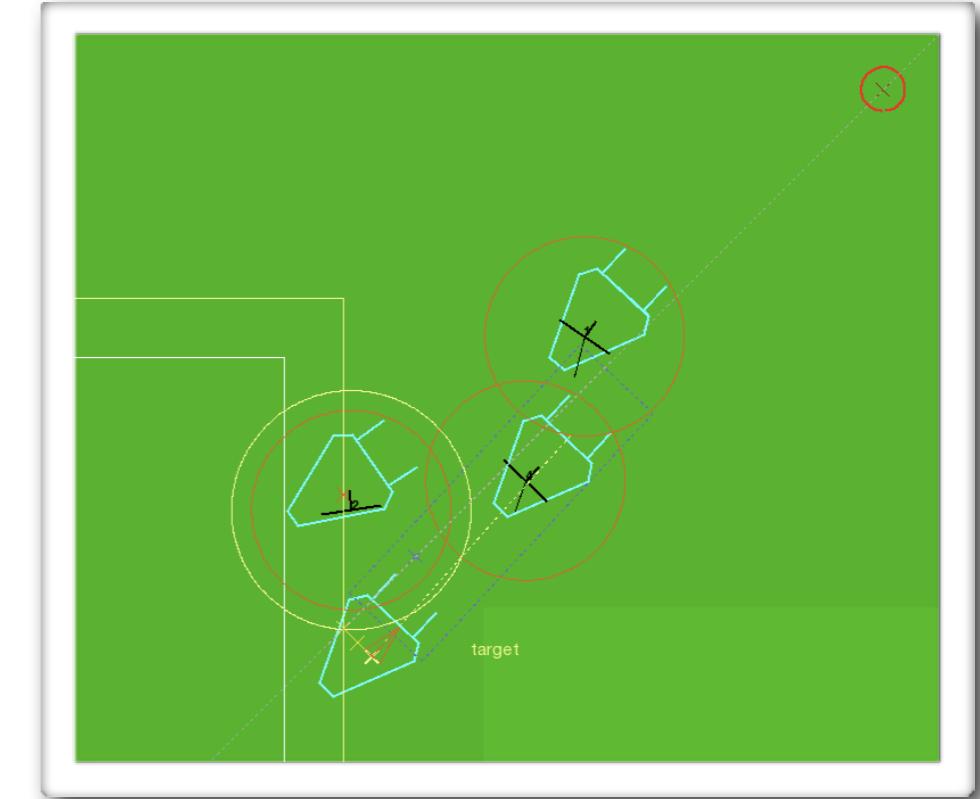
In the match-up option of the 2-2-1 we will take an adjustment to do a reversal pass if it is inbounded. This tends to confuse or distract opponents after they have initially tried to confront the regular version of our 2-2-1. In Figure 19.41 the ball is inbounded to 2. X2 immediately puts solid containment pressure on 2 and attempts to force him sideline. His counterpart on the front line of the press, X1, jumps up to guard the inbounder and deny the reverse pass. X3 moves up and matches up with 1, who ordinarily would have been X1’s man. X4 and X5 will also match up to the frontcourt personnel. Hence, the matchup becomes more like a man-to-man press except that we will also trap out of this version of the 2-2-1 press. Rotations will be similar to those in the regular version of the 2-2-press. The second-line defender on the weak side will be a pivotal player in this configuration because he must play off his man and be ready to rotate and protect against a long pass while a trap is being made.

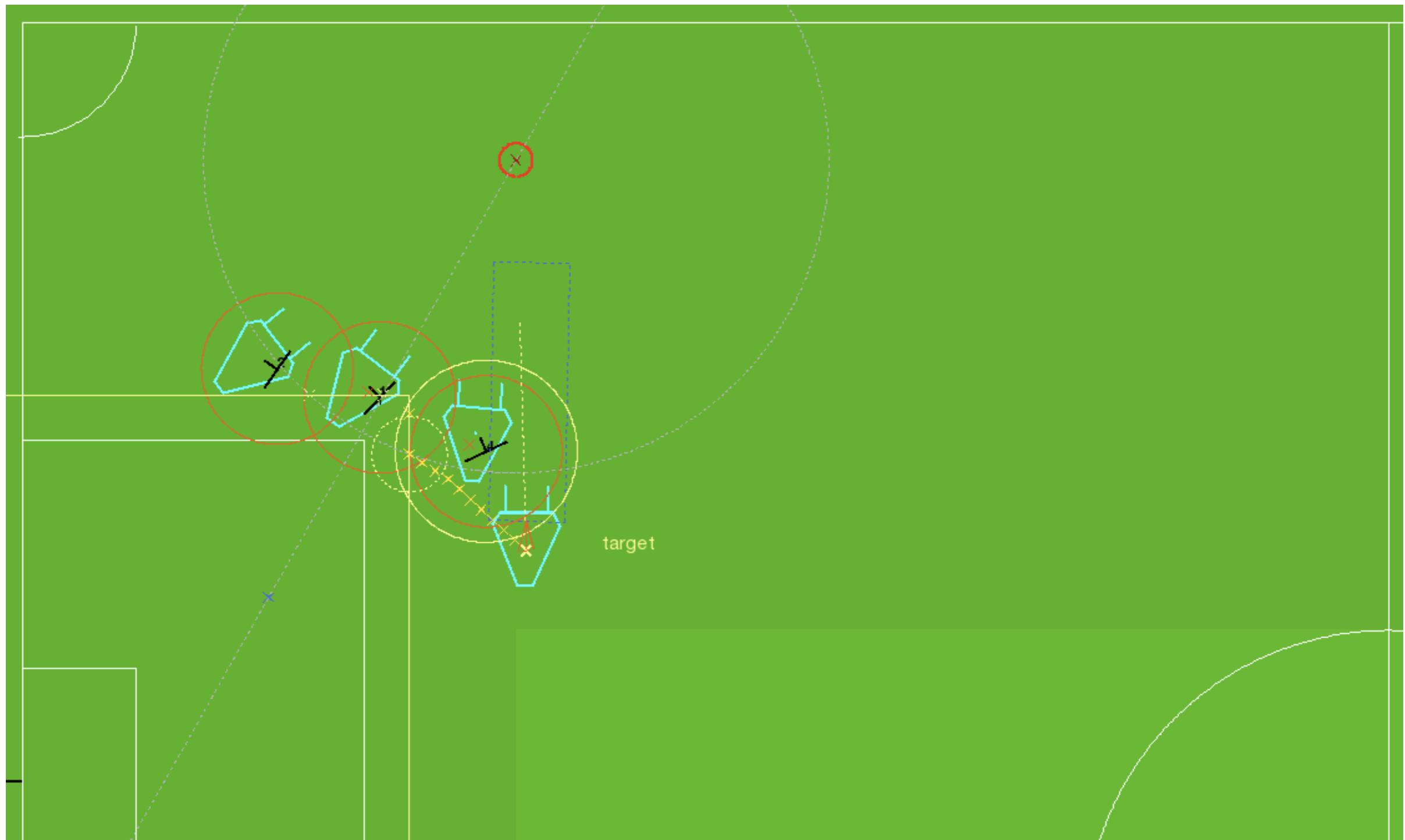
*“Retreat” Version and Other Options*  
*Out of the 2-2-1 (Figure 19.42)*

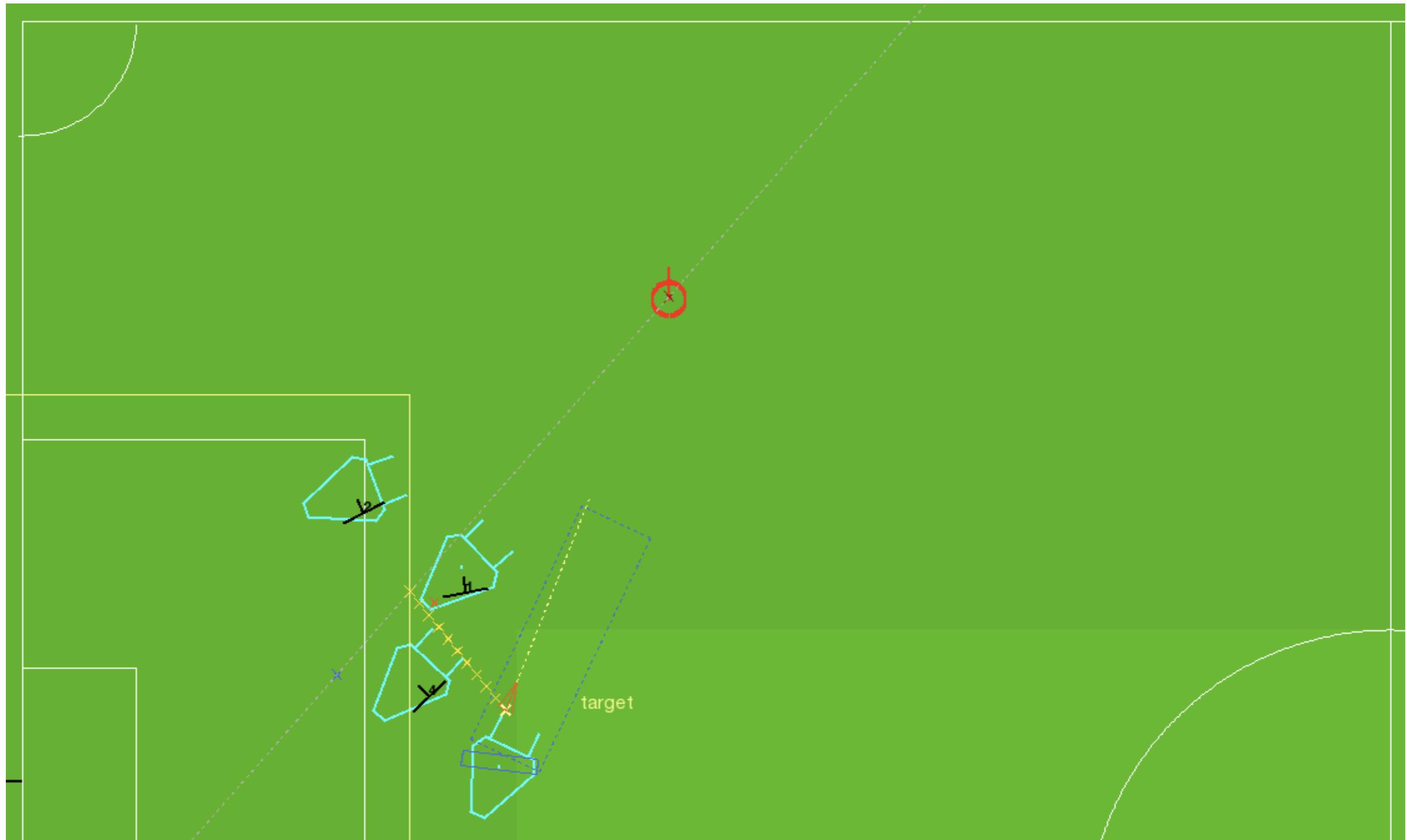
Depending upon the scouting report of an upcoming opponent, we may find it advisable to vary our 2-2-1 pressure by pulling it back and retreating some. This presents another look for our opponents to contend with. We simply will start our front-line people back toward half-court (as opposed to the foul line extended area where they would normally pick up opponents). When executed properly this version of the press is also very effective in that it allows us to control the

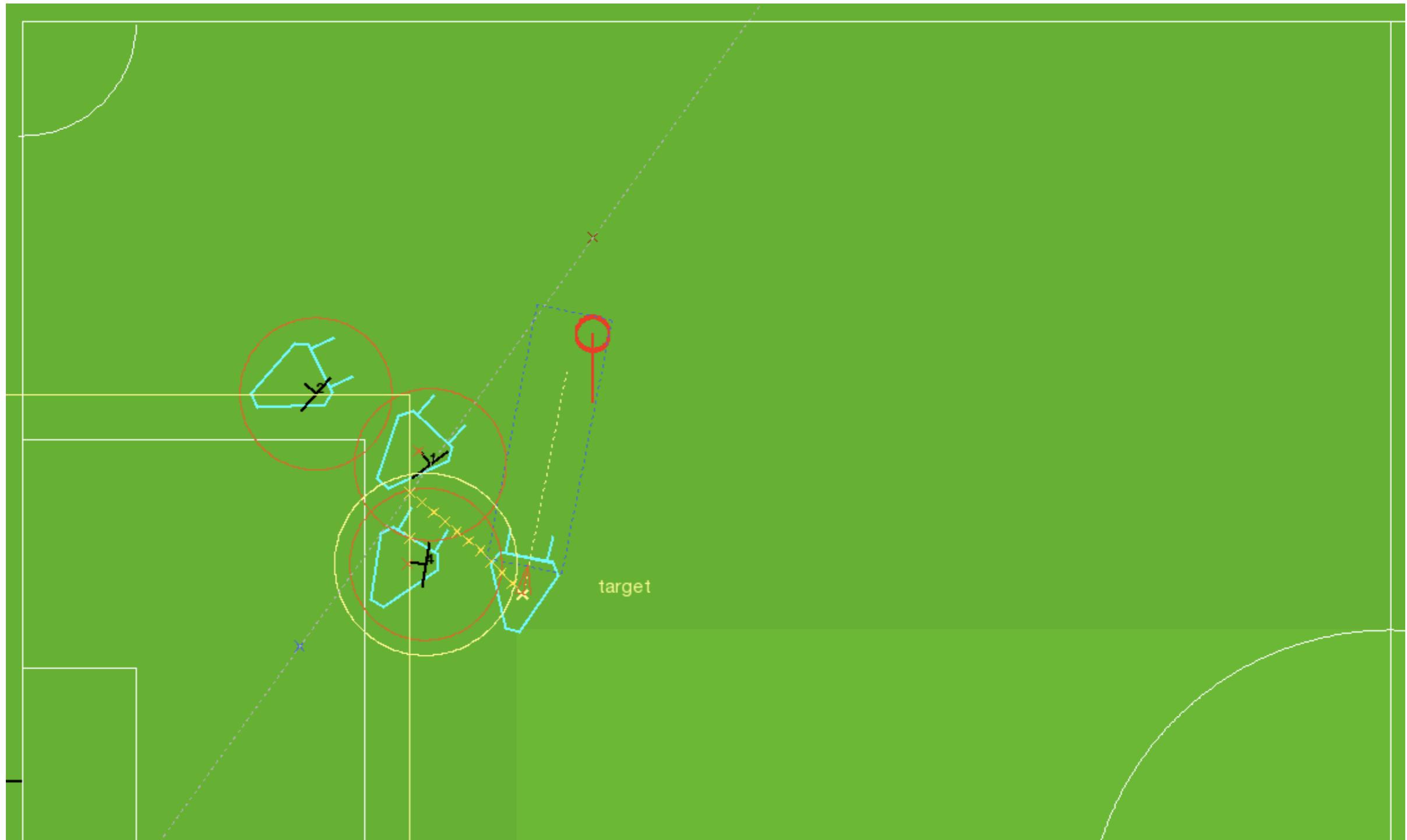
# Last idea: „Mirroring“

- Wanted to build a „Mauer“
  - no gaps between robots
  - visual avoidance strategy leads to oscillations
- „Mirroring“
- calculate the strategy and desired positions of all the other roles and slightly adapt own desired position
- use chain of command to determine „ordering of avoidance“



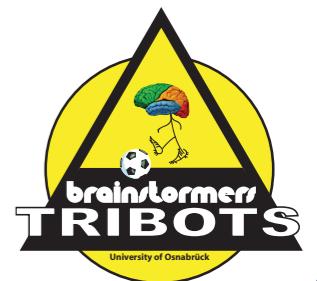






# That's it!

- implicit / explicit coordination
  - static and dynamic role changes
  - dynamic chain of command
  - mirroring
- 
- no secrets left
  - complete source code will be made available in december

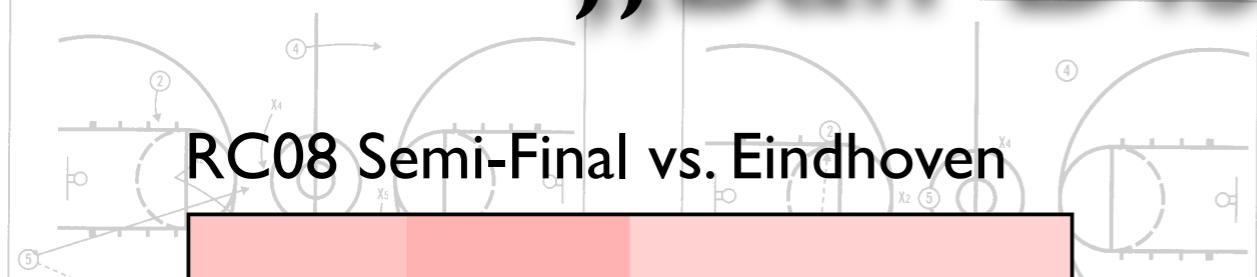


# „Ball Distribution“

## Transition Defining Processes

401

TEAM DEFENSE



*Figure 19.37*

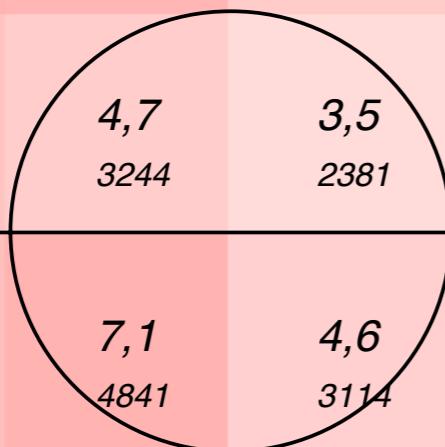
<b>5,7</b> 3883	<b>7,4</b> 5019	<b>4,3</b> 2950	<b>4,3</b> 2921
<b>7,1</b> 4862	<b>7,0</b> 4765	<b>4,9</b> 3361	<b>7,3</b> 4967
<b>5,7</b> 3877	<b>4,7</b> 3244	<b>3,5</b> 2381	<b>2,7</b> 1833
<b>6,1</b> 4153	<b>7,1</b> 4841	<b>4,6</b> 3114	<b>2,4</b> 1635
<b>2,7</b> 1869	<b>2,5</b> 1718	<b>0,4</b> 297	<b>0,9</b> 617
<b>3,3</b> 2283	<b>0,6</b> 463	<b>1,0</b> 687	<b>2,8</b> 1899

6. *Challenge* each other against our challenges.
7. *Rebound.* You can always find a second-shot.

The ball is not on the ball side, pinches to the middle level of the ball as second-line defender, X4, moves off hedge and recovers and encouraging defender, X4, mustocate with the deep side to defend the ball to a front-court position back to the basket to the middle is going to get the ball out of the middle ball must go around

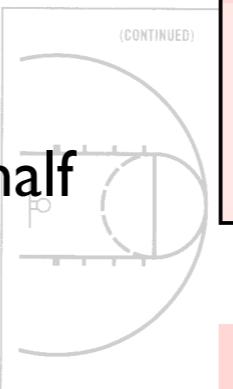
We do not disbelieve that after our first trap, a unique distributed significance teams trap once before trap a number of times taking off the press. We do not believe this simply because we will be very difficult to throw ball handler.

On a ball rever  
“bump” principle  
(see Figure 19.38).



(see Figure 19.38) 

own half



made in the alley as long as it is a good trap. We tell our players that "we want a good trap, not necessarily an early one." By a "good trap" we mean an aggressive, solidly executed trap in which our defenders have their hands up, put pressure on the ball, and *hold* it to force the offensive player to make it more difficult for him to escape or make a pass.

We can create go in the frontcourt. Ag would like for the often-second limit to Moreover, once the half-court, ideal tra players "this is where advantage of having we have less ground

When a trap is built to recover back into middle man and the hard to protect the essence, the deep man “mirror” the basket can recover back in according to Coach Houn will normally give a verbal or numerical

We will oftentimes teach possession dependent. We will obviously more traps, and the hoops against weaker multiple traps within teams on our schedule.

Assume they throw to a player ahead in time during the action from sideline to 4, X5's job is to respond wildly at a live ball. X5 responds with X4 coming

$4,1$ 3095	$2,2$ 1651	$0,5$ 381	$0,0$ 55
$3,7$ 2841	$3,3$ 2506	$2,2$ 1656	$2,3$ 1770
$2,0$ 1509	$3,7$ 2844	$3,6$ 2736	$9,7$ 7274
$5,9$ 4484	$9,1$ 6869	$9,3$ 7020	$7,4$ 5573
$4,0$ 3016	$5,1$ 3882	$6,3$ 4754	$4,9$ 3698
$2,3$ 1776	$1,2$ 925	$1,6$ 1269	$4,4$ 3334

presents another look for our opponents to contend with. We simply will start our front-line people back **>20%** half-court (as opposed to the foul line extended where they would normally pick up opponents). Executed properly this version of the press is also effective at helping us to alter and control the

# „Robot Distribution“



Figure 19.37

- Challenge every shot. When the ball is advanced against our press and a shot is taken, it must be challenged aggressively.
- Rebound. We must secure the rebound and limit second-shot opportunities.

## Initial Setup, Slides, and Rotations

The ball is not denied (see Figure 19.37). If containment pressure ball after it is inbounded on the ball side, X1. This pinches to the middle level of the ball as it is being second-line defender, X2, of hedge and recovery area and encouraging a lob. The defender, X4, must play with the deep man side to defend the deep to a front-court offensive back to the basket. It is to the middle is greatly ball out of the middle for ball must go around our

We do not discourage do not believe that will After our first trap we will retrap, a unique feature attributed significantly to teams trap once before pulling their press back. We will trap a number of times in a simple crossover before taking off the press. And that we do not believe the less, simply because we will discourage that pass and make it very difficult to throw by placing good pressure on the ball handler.

On a ball reversal we will employ the fundamental “bump” principle and make the appropriate rotations (see Figure 19.38). As the ball is reversed, the entire zone

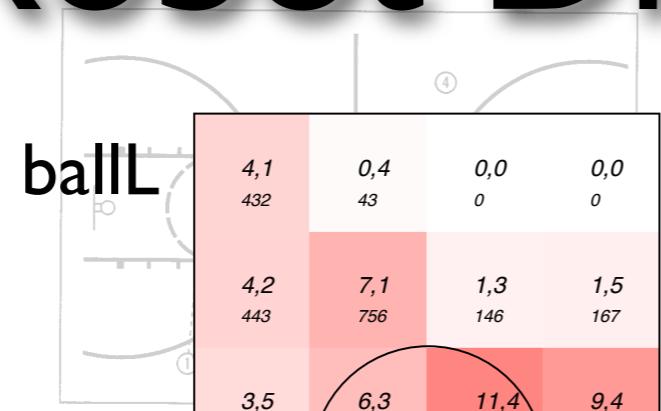


Figure 19.38

quickly rotates the ball is reversed to the middle side where he In maintaining the middle, this adjustment efficiently and effectively, on, coming from the side sec middle into what we call the “short middle” position. X4 is now the strong-side second-line defender, trying good principles and attempting to turn 2 into a double trap. X5 rotates back to the basket for protection in what we call the “deep middle” position.

This is a good example of our “1-4 Principle.” Initially X1 pressured the ball while X5 essentially formed a “box” of help to react. On the reversal X2 now plays the point of our “1-4 Principle,” with providing help behind him. We are always trying to spring our traps either sideline (see Figure 19.39). Note that we are not concerned with w

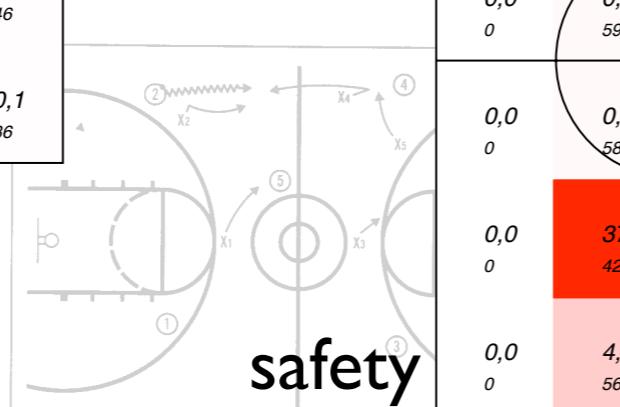


Figure 19.39

made in the alley as long as it is a good trap. We tell our players that “we want a good trap, not necessarily an early one.” By a “good trap” we mean an aggressive,

ers have their dy 2-2-1 at full court to

start as well as sal pass—we much of the as possible. ed just over we tell our m.” Another area is that be broken. t work hard n. The short st work very e basket. In basketball or p-court. We one defense Coach

ers that a verbal or numerical signal.

We will also try to spring several traps w on the strength of our ent. We will obviously gamble much more, encor more traps, and therefore may allow a few more traps against weaker teams. We take fewer chance in a possession against the struc

tow out our first trap near mid the alley (see Figure 19.40). Com Figure 19.39, if 2 throws up b is to control 4 by not sprintin X5 has to time his close-out to

from midcourt. As X4 arrives

in the match-up option of the 2-2-1 we will make reversal pass after it is used or components confront the regular ver

41 the ball is inbounded id containment pressure m sideline. His counter press, X1, jumps up to deny the reverse pass. X3

1, who ordinarily would will also match up to the, the matchup becomes s except that we will also 2-2-1 press. Rotations will

ular version of the 2-2-1 er on the weak side will be uration because he must y to rotate and protect o is being made.

**right**

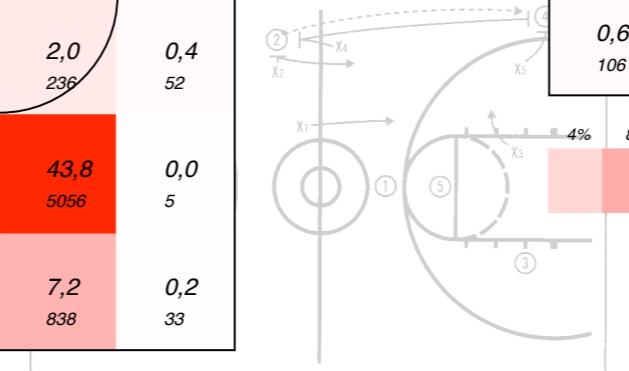
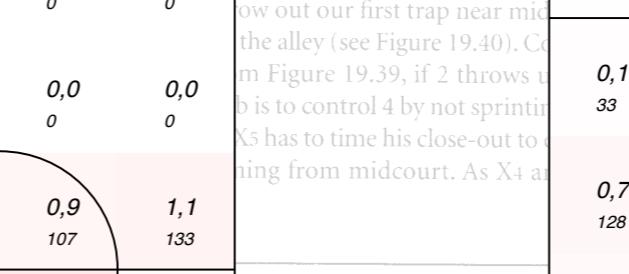


Figure 19.40

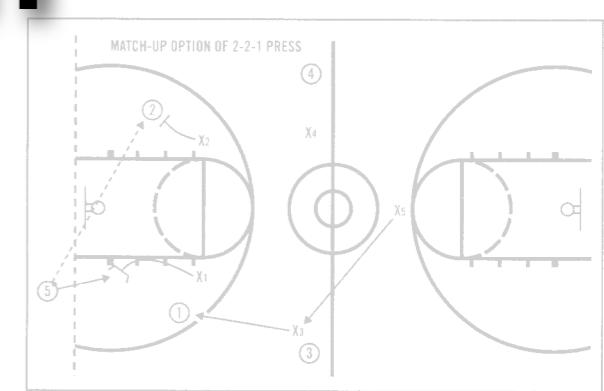


Figure 19.41

close a trap, X3 must cover the strong-side block and basket, X1 has to sprint to cover anyone in the top of the key to elbow area, and X2 takes any pass out of the trap back toward midcourt.

## Match-Up Option of the 2-2-1 Press (Figure 19.41)

In the match-up option of the 2-2-1 we will make reversal pass after it is used or components confront the regular ver 41 the ball is inbounded id containment pressure m sideline. His counter press, X1, jumps up to deny the reverse pass. X3

1, who ordinarily would will also match up to the, the matchup becomes s except that we will also 2-2-1 press. Rotations will

ular version of the 2-2-1 er on the weak side will be uration because he must y to rotate and protect o is being made.

## Other Options (Figure 19.42)

Depending upon the scouting report of an upcoming game we may find it advisable to vary our 2-2-1 by pulling it back and retreating some. This presents another look for our opponents to contend with. We simply will start our front-line people back toward half-court (as opposed to the foul line extended area where they would normally pick up opponents). When executed properly this version of the press is also very effective at helping us to alter and control the

# „Robot Distribution“



Figure 19.37

## Semi Final vs. Eindhoven

- Challenge every shot.* When the ball is advanced against our press and a shot is taken, it must be challenged aggressively.
- Rebound.* We must secure the rebound and limit second-shot opportunities.

### Initial Setup, Slides, and Rotations

The ball is not denied on the inbounds (see Figure 19.37). Tight pressure is immediately applied on the ball after it is inbounded on the ball side, X1. The pinches the middle at the level of the ball as it is being good hedge and recover principles and getting to lull 4% in 8% s 12% in 16% ap >20% rotates back basket for all the "deep" position. This is a good example of our "1-4 Principle" at initially X1 pressured the ball while X2, X3, X4, essentially formed a "box" of help behind him to react. On the reversal X2 now pressures the ball point of our "1-4 Principle," with X1, X3, X4, and providing help behind him.

We do not discourage do not believe that will happen. After our first trap we will retrap, a unique feature contributed significantly to the teams trap once before putting a trap a number of times taking off the press. Another point we emphasize is that we do not believe the long diagonal 4% 8% 12% will us >20%, simply because we will do very difficult to throw by ball handler.

On a ball reversal we will employ the fundamental "bump" principle and make the appropriate rotations (see Figure 19.38). As the ball is reversed, the entire zone

0,0 0	0,2 34	0,0 0	0,0 0
3,5 450	5,3 681	2,0 255	0,0 0
1,4 187	8,4 1069	10,2 1301	1,0 127
2,8 358	22,6 2874	11,6 1477	0,3 40
1,9 244	21,5 2737	2,1 271	0,0 12
1,8 234	0,8 105	1,4 188	0,4 53

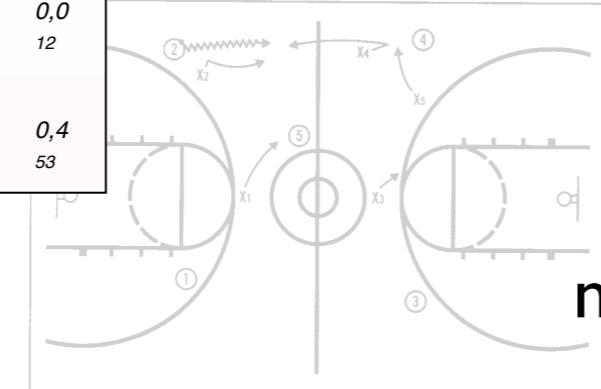


Figure 19.39

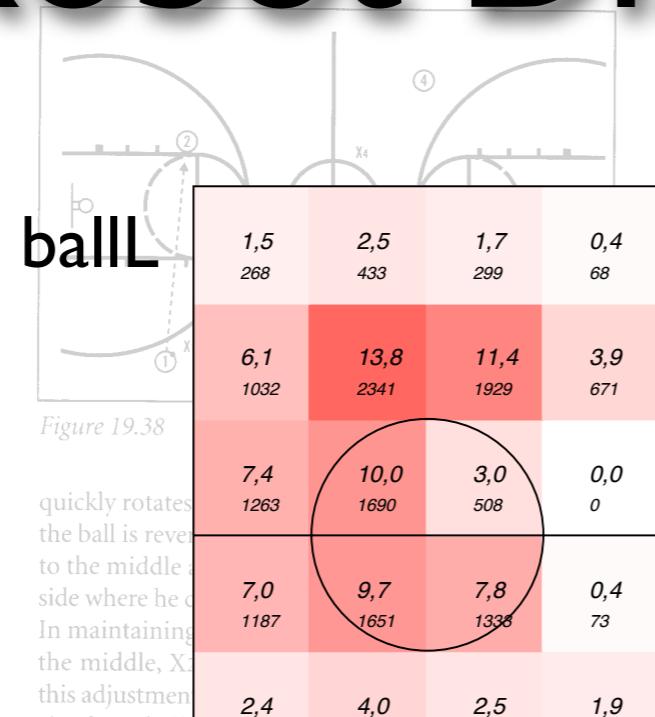


Figure 19.38

# TEAM DEFENSIVE

made in the alley as long as it is a good trap. We tell our players that "we want a good trap, not necessarily an early one." By a "good trap" we mean an aggressive, solidly executed trap in which our defenders have their hands up, put pressure on the ball, and *body up* to the ball. This is a good trap for him to

as pass—we much of the possible. just over we tell our "Another rea is that broken. work hard. The short work very basket. In basketball or court. We defense each Cal

2,4 448	1,3 250	0,9 168	1,3 249
2,9 549	13,2 2437	8,0 1485	6,1 1124
2,4 447	6,1 1120	4,6 855	2,4 458
0,5 108	8,4 1558	7,4 1378	2,5 460
1,5 288	3,3 621	1,0 189	1,4 268
13,0 2390	6,4 1174	0,6 119	1,1 204

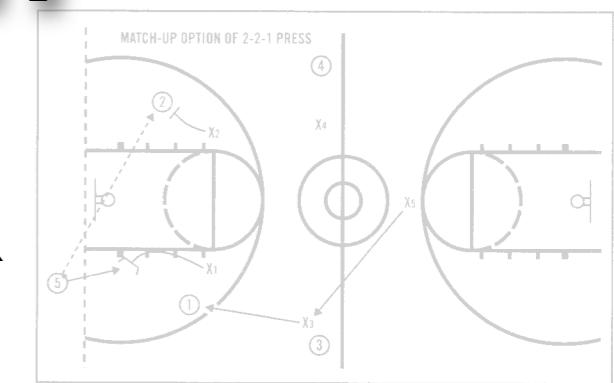


Figure 19.41

close a trap, X3 must cover the strong-side block and basket, X1 has to sprint to cover anyone in the top of the key to elbow area, and X2 takes any pass out of the trap back toward midcourt.

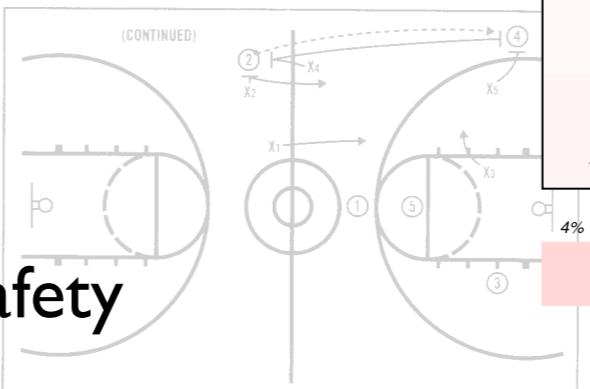
### Match-Up Option of the 2-2-1 Press (Figure 19.41)

In the match-up option of the 2-2-1 we will make an adjustment to deny the reversal pass after it is inbounded. This tends to confuse or distract opponents

onfront the regular version of the 2-2-1. The ball is inbounded containing tight pressure on the sideline. His counter-press, X1, jumps up to deny the reverse pass. X3, who ordinarily would

will also match up to the the matchup becomes except that we will also 2-1 press. Rotations will ar version of the 2-2-1 on the weak side will be ation because he must to rotate and protect s being made.

0,0 0	1,1 227	0,0 5	0,0 0
0,0 0	3,8 753	1,4 293	5,3 1063
0,4 92	13,5 2670	4,2 844	2,9 581
1,5 302	19,7 3885	14,8 2932	1,8 370
0,6 127	10,7 2116	12,8 2528	0,7 157
1,0 214	1,1 227	0,1 28	1,4 291



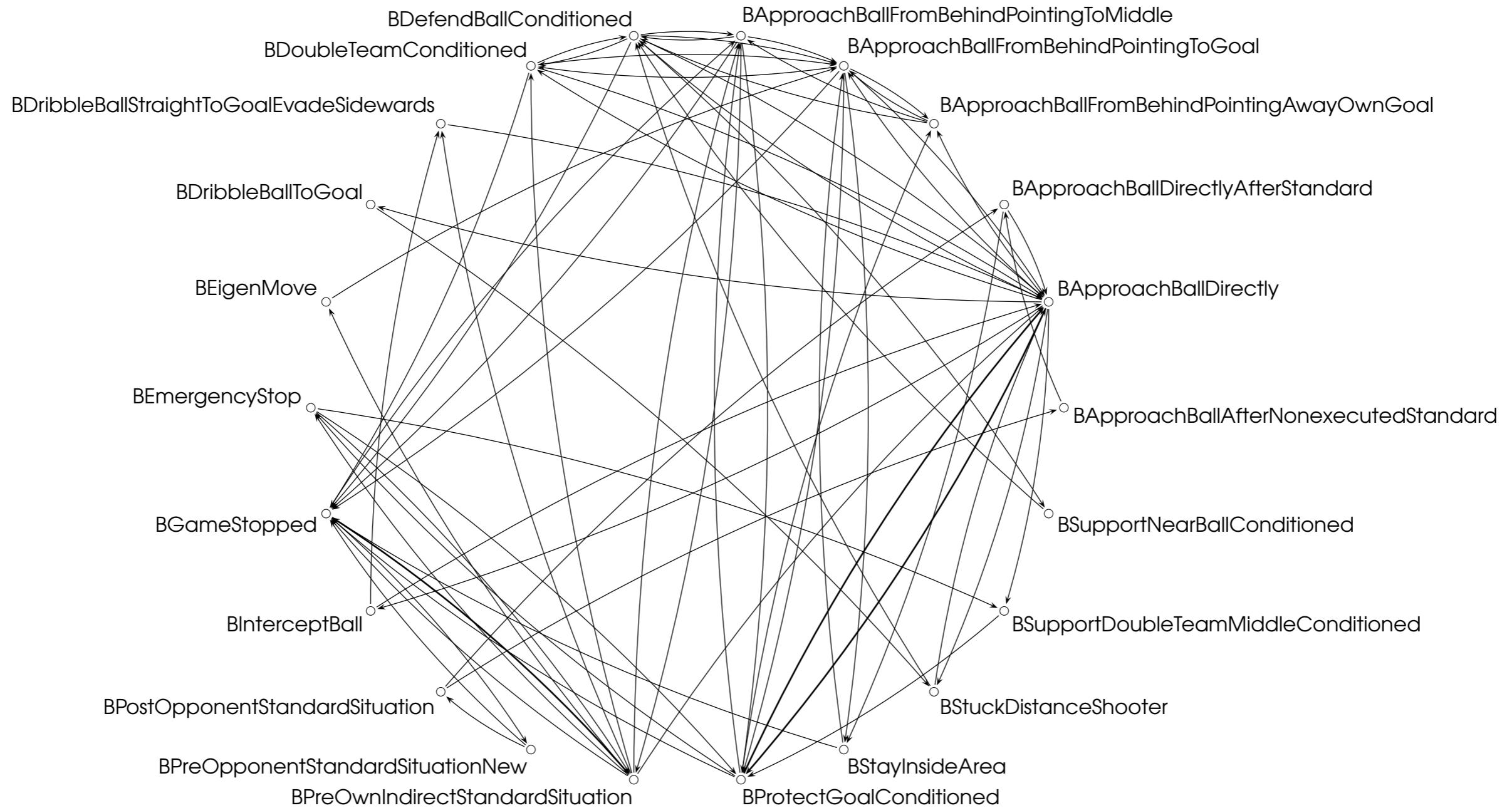
no safety

Figure 19.40

pressure by pulling it back and retreating some. This other look for our opponents to contend will start our front-line people back toward half-court (as opposed to the foul line extended area where they would normally pick up opponents). When executed properly this version of the press is also very effective at helping us to alter and control the

### Other Options (Figure 19.42)

report of an upcoming able to vary our 2-2-1



# Stuttgart

