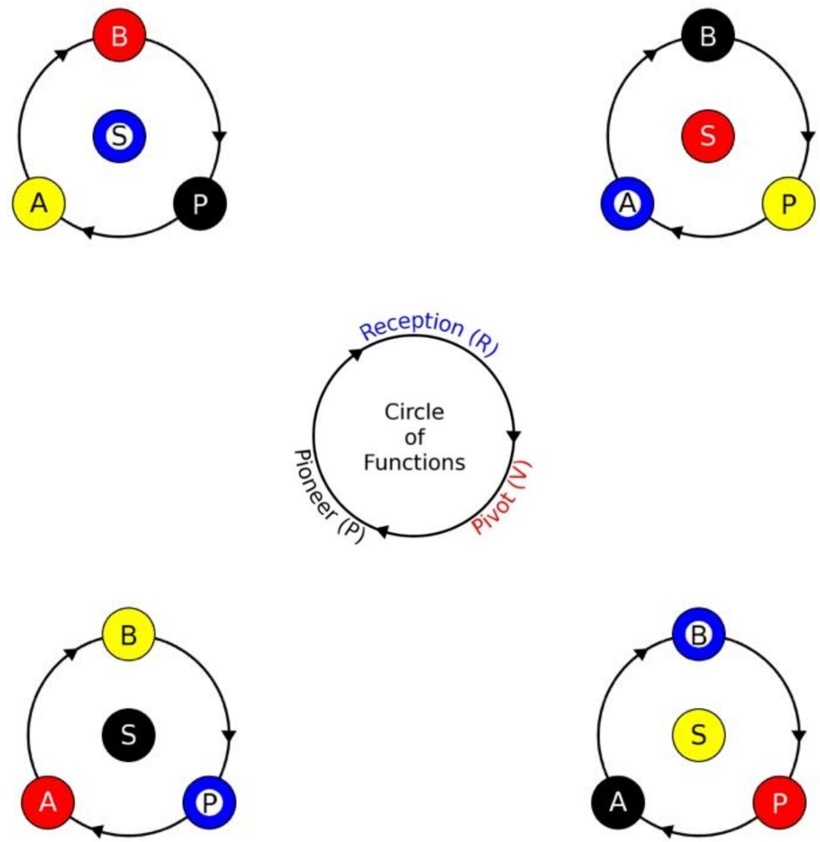
COLOR ORDER ASSOCIATION CROQUET



COLOR ORDER ASSOCIATION CROQUET

written by[1]

Howard Sosin

with

Paddy Chapman *and* **Ben Rothman**

Acknowledgements[2]

To Carmen and Matthew. Finishing this book will finally allow me to return to Family Order. Howard

To John, who taught me to think outside the box. Paddy

To Brian, who answered all of my questions with patience. And to my family, for listening to my ramblings. Ben

[1] Word Version (21-12-09). We chose "he" as our universal pronoun. Please read in whatever works best for you. We understand that errors may be discovered. Please send suggestions to Howard@Sosin.net.

[2] We want to thank the Croquet Foundation of America for supporting the many iterations of "Croquet Iterations" that were trialed and filmed at the NCC.

FOREWORD

Players have been working for a long time to make the traditional Association Rules game more challenging. Significant evolutions have involved giving Oppos lift options depending on how far Striker progresses: 4-Back (introduced in 1929), 1-Back (1946), and in recent years a third lift at h(4). These changes seek to increase interactivity, affect the leaves that are set and encourage elaborate peeling turns, but they do not make the building of a break or the turn itself inherently more difficult. To that end, many tournament managers work to have the toughest, tightest hoops and shortest, driest grass – this is commendable, but is at the mercy of the elements and soil conditions and requires many hours of (often voluntary) effort. And still, top players tend to succeed in building breaks, regularly complete triple-peels with ease, and sometimes score sextuple peels.

Color Order Association Croquet (COAC) attempts to make the game more challenging and interactive by different means. It uses lifts, but now in the context of two significant rule changes:

(i) **Balls must be roqueted in Color-Order (CO)**: Striker can start a turn, and then each new hoop, by roqueting any ball. That ball determines the order Striker must follow until the next hoop is made. Thus, if u is Striker, u can roquet any ball (r, k, or y) to start but then the order of the balls he can play depends on the ball he roqueted first: (if r: then k, y), (if k: then y, r) or (if y: then r, k).

(ii) **Play at 4-Back:** The forward ball of each team must progress through 4-back by being peeled either by Partner or Oppo. The back ball can then make 4-Back on its own but grants a lift-to-contact.

In COAC players will need to plan each hoop, peel, and leave with a renewed focus, always aware of CO. But you do not have to go it alone! Howard has extensively studied the ramifications of these rule changes and together with us, written this book as a guide. Throughout we ask: Does the CO I currently have allow me to accomplish what I want to do later in my break (e.g., can I set a leave or complete a peel)? If not, then how can I fix it and when should I make the correction? We show you how to answer these questions in real time while out on the lawn running a break.

Players looking for an interactive challenge in a familiar Association Game when conditions are trivial (flat and fast) should enjoy this deep dive into Color Order Association Croquet!

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I.. INTRODUCTION[3]

The Organizing Ideas

The goal in Traditional Association Croquet (T-AC) is to win the race to peg. This is done by gaining control of the balls such that Striker can run breaks, set leaves, and complete peels. The goal in Color Order Association Croquet (COAC) is the same, but the process of gaining and keeping control is more challenging because the rules specify that the balls must be roqueted in Color Order (CO). The fundamental tension is that the order you want to use the balls, their Functional Order (FO), may not match their CO.

The complete rules of COAC are presented at the end of this introduction. For now, the two main ones are:

The CO Rule: The first ball Striker roquets at the start of his turn can be any of the other balls. After that, Striker can use a second ball (or not), and then a third ball (or not) to progress, but only if they follow in CO, in the clockwise progression illustrated for each color of Striker in the circles presented on the title page, where: S=Striker, A=AFTER-Partner Ball, B=BEFORE-Partner Ball, and P=Partner. CO is reset by reference to the first ball that is roqueted by Striker after making each additional hoop while running a break. The CO rule applies even when a ball (or balls) is not available (i.e., at the start of a game, or a 2 versus 1 endgame). In addition to deadness as defined in T-AC, Striker is dead on a ball while it is out of CO.

Rules for Making or Peeling at h(10): Striker may not score h(10) for himself unless: (i) Striker's team has peeled a ball (Partner or Oppo) to score h(10), or (ii) Oppos have peeled one of the Striker-Team balls to score h(10)[4]. Striker making h(10) on his own always grants a lift-to-contact[5].

[3] I want to thank Sherif Abdelwahab, David Bent, Matthew Essick, David Maloof, Stephen Morgan, and Jeff Soo for taking the time to discuss and play COAC.

[4] Stephen Mulliner deserves credit/blame for the required peel at h(10). I mentioned to Stephen that peeling was more challenging in COAC than in T-AC. He asked the logical question, “Why not skip peeling altogether and simply run 9, 12 and 5?” The required peel thwarts this strategy and does much more. ...

[5] Granting a lift-to-contact after h(10) is not original to me. Paddy Chapman proposed it a while back for use in T-AC. He liked the challenge it creates and named it the “Chapman Variation”.

What You Will See Out on The Lawn

Participants in a COAC game will witness subtleties that make generating and maintaining breaks, and running peeling turns, more difficult resulting in a more interactive game than observed in T-AC. This makes COAC the perfect game to play when conditions are easy. Here are some of the things to look for:

The Start: All openings from T-AC are available. However, CO applies from the first ball: Suppose blue (u) plays first – it could have been black (k) – and is followed by red (r) – it could have been yellow (y). Then k will play. k can roquet u or r, but if he roquets r then k cannot go to u, as that would violate CO. A two-ball break is possible as is a three-ball break. But the latter requires Load and Holds (L&Hs)[6] at each hoop because the 4th ball is part of the CO even though it is not yet in the game.

Gaining the innings: Setting a leave for one or both balls, Single-Customer or Two-Customer Leaves, are possible. But now having an Oppo-Ball at the correct hoop is not enough – it needs to have the correct color.

Running a Break: The traditional procedure for running a break, by sending the Reception-Ball to be the Pioneer two hoops forward, is still available, but it takes the balls out of CO. It is often more efficient to run a break using Pivot-Swaps and other "Procedures" that are developed herein.

Setting a Leave after Multiple Hoops: All leaves set in T-AC are possible in COAC but require increased precision as they are being set. For example, a Diagonal-Spread Leave is easiest to set if the ball that is hit BEFORE-Partner in CO is at the peg. The New Standard Leave and Bryant Standard Leave only allow Standard-Triple attempts if the ball that is hit AFTER-Partner in CO is at h(4).

Peeling and Finishing Turns: All types of peels, Back, Straight, and Transit are possible. But CO increases their difficulty because only one of the Oppo Balls works as an Escape-Ball – it is the AFTER-Partner Ball in CO. All 2-Turn Finishes from T-AC – Triples, Quads, Sextuples, etc., are available in COAC. In T-AC there can be a 3-Turn Finish with no peels. Not in COAC. Here the rules force a peel at h(10). The rules also reduce the value of speculative peeling turns seen in T-AC where Striker is disappointed but not particularly discomforted if he fails to finish his Triple, gets off the lawn, and grants only a lift-to-baulk. In COAC Oppos get a lift-to-contact, and likely the innings. Striker can avoid this situation by giving up the idea of a 2-Turn Finish and using a 4-Turn (one-Peel) Finish instead. A Player's expected success rate with Straight-Double-Peels should be considered in this decision.

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[6] In COAC, any hoop approach which is played off one ball with the hoop scored to a different reception ball, is a L&H.

A Brief Outline of the Book

This book is organized into chapters with ADDED INFO sections (useful material that can be viewed later) included at the end. All you need to know on the lawn is included on the back cover.

Chapters II: PROCEDURES*:* There are six different ways to organize the three non-Striker balls at each hoop, where one is Reception, one is Pivot, and one is Pioneer. Then there are multiple ways, "Procedures", to move these balls from functional roles at the current hoop to functional roles at the next hoop. These can include play by 2, 3, or 4 balls. This chapter is a comprehensive presentation of the possible Procedures. You will meet the most used Procedures: STANDARD, EXPEDITE, REPEAT, TAC, and 3-FIX; as well as their less frequently used cousins: 3-BALL, 3-L&H, 3-4-BALL, And 2-BALL; and finally, the rarely used two, LIMITED and MYSTERY.

Chapter III: THE ARITHMETIC OF CO: CO creates new challenges because playing the balls in CO may not coincide with how Striker might otherwise want to use them from their positions on the lawn, their Functional Order (FO). Dealing with the synchronization (sync) or lack thereof, of CO and FO is new and is a fundamental aspect of playing COAC. The ever-present question in COAC is: Does the CO/FO I currently have allow me to accomplish what I want/need to do later in my break (e.g., can I set a leave or complete a peel)? If not, then how can I fix it and when should I make the correction? Facility with the Procedures lets you use the "Arithmetic of CO", a method we devised to answer these questions. It is derived from the Circle of Functions shown on the cover. As long as you can divide an integer between 1 and 12 by three and take the remainder, its Mod(3), you can answer these questions in real time while out on the lawn.

Chapter IV: SETTING LEAVES: This chapter compares how players set leaves in COAC to what is used in T-AC. All the usual leaves (DSL, NSL, MSL, SxP, and OSL) are possible, as is the BSL [h(1)/h(4) hoop leave] which is particularly attractive for COAC. The DSL is often the most efficient. However, it too has new considerations. CO implies that: (i) There is a "best" ball to put at the peg (it is the BEFORE-Partner-Ball); (ii) Realistically, Striker can get only two adjustments on the peg-ball; (iii) There is no point in sending Partner to h(8) from h(5); and (iv) If the h(1) ball will want to run a 2-Turn Triple-Peel, then his rush is best set to h(1) and not to the peg.

Chapter V: GAINING THE INNINGS*:* Organizing a leave to make it as easy as possible to get going in COAC can involve leaving Oppos at current and pioneer hoops, and also wiring them, just as in T-AC. But subtle differences exist. This chapter explores Single-Customer Leaves (setting a leave for one ball to play) and for Two-Customer Leaves (where either ball can proceed). It is surprisingly more difficult to get-started in COAC, which can lead to Two-Turn Leaves – a leave to a leave.

Chapter VI: PEELING*:* This chapter starts by showing that Back-Peels[7], Straight-Peels and Transit-Peels can be accomplished in COAC using only the STANDARD Procedure. However, the peeling cycle using STANDARDs is three hoops long as opposed to the T-AC norm of just two. The extra hoop arises because CO repeats the required position of Peelee (the Pivot-Ball for Transit-Peels and the Reception-Ball for Back-Peels) every 3-hoops using just STANDARDs. This chapter also shows that only one of the oppo balls (instead of two in T-AC) can be the Escape-Ball (it is the AFTER-Partner Ball) and it too has a three-hoop cycle. Other Procedures, TAC, 3-FIX, and EXPEDITE, combine with STANDARD to allow for 2-hoop peeling cycles. However, the REPEAT Procedure is usually the most efficient way to peel every two hoops and is the only reliable way to peel every hoop.

Chapter VII: STANDARD AND DELAYED-TRIPLES*:* In this chapter Striker proceeds with Standard[8] and Delayed-Triples starting from a DSL[9]. We show that both can get done but that each has new challenges. In addition, both face a new consequence for failure to complete – a lift-to-contact – instead of the T-AC penalty of a lift-to-baulk.

Chapter VIII: 4-TURN FINISHES*:* This chapter considers how Striker can proceed if he chooses not to run, or is unlikely to complete, a Triple-Peel. Striker still wants/needs to complete the h(10)-Peel. 4-Turn Finishes defined by when the h(10)-Peel is completed are explored. They can arise as early as having k peel u at h(10) before making h(1), and as late as when k peels u at h(10) W-h(9). A differently oriented DSL can facilitate[10] this process.

Chapter IX: SEXTUPLES: This chapter considers Standard and Delayed Sextuples. The focus is on completing the "First-Triple"– h(7), h(8) and h(9) – and how/when Striker can join the "Second-Triples" that were discussed in Chapter VII.

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[7] **ADDED INFO #1:** Special Properties of Back-Peels: This note establishes that, for the same reason Back-Peels are easy in T-AC, they are also easy in COAC. But there is an added benefit in a CO environment – a Back-Peel can easily follow a Transit-Peel in two hoops rather than the COAC norm of every 3-hoops.

[8] **ADDED INFO #2:** An Example of the Flexibility of the Procedures when the h(12) Peel is in Trouble: This note shows multiple solutions to a h(12) Peel that initially fails on-the-way to h(10).

[9] **ADDED INFO #3:** Miscellaneous Plays Early in a Triple: In T-AC, the color of the ball *per se* that Oppos play as they pick-up and shoot from a DSL is of limited consequence. But color has an impact in COAC. Some of that is explored in Chapter VII, but, in the interest of space, some is left out, and picked-up here.

[10] **ADDED INFO #4:** An Alternative DSL with a Reverse Rush: This note presents a DSL leave wherein u, for h(10), is in c4 with k, for h(1), one foot north of u – a Reverse Rush. r is at the peg, and y is near h(2). Depending on what r/y do, there can be cannons that lead to 2-Turn Finishes by k, or bombards that lead to 4-Turn Finishes by u.

Chapter X: OPENINGS: The CO Rule applies from the first shot of a game and has important implications for opening turns. But, like other books on croquet, there is much to cover before the logic of openings falls into place. So, this discussion is deferred to virtually the end. One observation is that while a T-AC opening is all about the 3rd, 4th and 5th turns, COAC shifts all of this forward one turn – to the 4th 5th and 6th Turns.

Chapter XI: PEGGED-OUT ENDGAMES: The CO Rule applies throughout a game. This chapter explores how it impacts endgames.

Chapter XII: PEELING MULTIPLE BALLS: This final chapter is more theoretical than practical. It considers situations that call for peeling more than one ball. CO-Triple-Peels (u, r, y) and Reverse CO Triples Peels (y, r, u) are considered where each peel is followed by either two hoops or one.

Chapter XIII: TP AND DSL/NSL SUMMARY SHEETS: J*ust tell me where to put the balls!* These pages are quick reminders of how running "9" and Triple-Peeling in COAC differs from T-AC.

ADDED INFO #1 – #4: These sections deal with issues that are nice to know but not critical to play.

COAC IN ONE PAGE: This is a new and challenging game with lots to think about. That said, all you really need to know to play well fits on a single page and is presented as the back cover of this book.

Final Note: Our hope is that you too begin to dream in Color Order[11].

[11] We are sure ambiguities (inaccuracies, errors?) remain in the text. We would appreciate receiving questions, comments, and suggestions. Pls send them to: howard@sosin.net.

The Rules of COAC

Introduction: This game follows the rules of T-AC with the added requirement that Striker must roquet the balls in Color-Order ("CO"), an order determined at the start of each turn and reset after the completion of each hoop during a break.

In general, the first action Striker takes to start a turn is to roquet a ball. That ball is designated the "1st Ball"[12]. Striker can use the 1st Ball to make his next hoop, or Striker can use it to approach a "2nd Ball", and then perhaps use the 2nd Ball to approach the "3rd Ball", before finally being required to make his hoop, or have his turn end. In T-AC, the 2nd Ball can be either of the balls that Striker is still alive on. But, in COAC the choice of the 1st Ball determines the ball that must be hit next (if a 2nd Ball is used) and the 2nd Ball determines the ball that must be roqueted last (if a 3rd Ball is used).

When a hoop is made, which can be after Striker has used 0, 1, 2, or 3 balls, Striker can once again roquet any ball on the lawn. This ball becomes the new 1st Ball; it identifies the new 2nd Ball and the new 3rd ball, and, thus, the CO until the next hoop is made, etc.

Determining CO

If u is Striker: u can roquet any ball (r, k, or y) to start but then the order of the balls he can hit depends on the ball he roqueted first: (if r: then k, y), (if k: then y, r) or (if y: then r, k).

If r is Striker: r can roquet any ball (u, k, or y) to start but then the order of the balls he can hit depends on the ball he roqueted first: (if u: then k, y), (if k: then y, u) or (if y: then u, k).

If k is Striker: k can roquet any ball (u, r, or y) to start but then the order of the balls he can hit depends on the ball he roqueted first: (if u: then r, y), (if r: then y, u) or (if y: then u, r).

If y is Striker: y can roquet any ball (u, r, or k) to start but then the order of the balls he can hit depends on the ball he roqueted first: (if u: then r, k), (if r: then k, u) or (if k then u, r).

[12] There are exceptions. Striker can also make a hoop to start his turn. Additionally, with a lift-to-contact, Striker can start his turn with a croquet shot, in which case the croqueted ball becomes the 1st Ball.

The CO Rule: The 2nd Ball, if any, and then the 3rd Ball, if any, used in a turn or to continue a break after making a hoop must follow the 1st Ball in CO. This rule always applies, even when a ball is not available at the start of a game or if a ball is pegged-out late in a game. In addition to deadness as defined in T-AC, Striker is dead on a ball while it is out of CO.

Making h(7): As in T-AC, Striker making h(7) grants Oppos a lift-to-baulk.

Making or Peeling at h(10): Striker may not score h(10) for himself unless: (i) Striker's team has peeled a ball (Partner or Oppo) to score h(10), or (ii) Oppos have peeled one of the Striker's balls to score h(10). Striker making h(10) on his own always grants Oppos a lift-to-contact.

Peg-Outs: As in T-AC, a Team that pegs-out any ball, (Striker, Partner or Oppo), is no longer eligible for lifts, other than wiring lifts.

II.. PROCEDURES

This chapter introduces “Procedures” (ways to play the balls) used to make hoops, set leaves, and perform peels. It considers the Procedures that Striker can use to run a break when CO and FO are in sync and ones he can use when they are out of sync. Finally, it considers Procedures that Striker can use to maneuver between these two situations.

Notation and Conventions

We have chosen to use only numbers (1-12), not names, for all hoops. “h” stands for hoop and “i” is an index to the number of Striker’s Current-Hoop – h(i). (i+1) identifies Striker’s Next-Hoop – h(i+1). In this book h(i)=i, but in general, it does not have to.

Explicitly or implicitly, Striker assigns and then reassigns “Functions” to each of the three non-Striker balls as he plays hoops in a break. Each ball always has one of three Functions: R(i) – Reception-Ball, V(i) – Pivot-Ball, and P(i+1) – Pioneer-Ball.

However, other than natural efficiency, nothing in COAC forces Striker to use all four balls to make a hoop or to keep the balls in identifiable functional positions. All that is required is that the balls be roqueted in CO.

<u>Striker Ball</u>: In our examples, we tend to use u as the Striker for initial breaks, and his Partner k as the Striker for peeling turns.

<u>Reception-Ball</u>: R(i) is the 1st ball used after a hoop is made. It is typically found on the non-playing side of the Current-Hoop.

<u>Pivot-Ball</u>: V(i) is the 2nd ball used. It can be placed anywhere but traditionally it is positioned to limit the need for big roll-shots during break play, to facilitate setting a leave, to set-up for peels, or to continue a break after a Back-Peel.

<u>Pioneer-Ball</u>: P(i+1) is the 3rd ball used in a 4-ball break. It has three identities in COAC. (i) As in T-AC, it is most often placed on the playing side close to Striker’s next hoop, h(i+1). (ii) In both T-AC and COAC, the Pioneer-Ball can be moved to an Escape-Ball position to facilitate travel to the Pioneer-Hoop after a peel attempt. Here it is identified as E(i+1,j) – where “E” stands for Escape, (i+1) identifies the Pioneer-Hoop, and j identifies the Peeling-Hoop. (iii) Finally, in COAC, there is an additional possibility: The Pioneer-Ball can intentionally be in a misplaced position, typically as the result of a peel. Here it is identified as M(i+1,j) – where “M” stands for Misplaced-Pioneer, (i+1) identifies the Pioneer-Hoop and j identifies the old Peeling-Hoop.

Identifying the Peelee: Depending upon the circumstances, the ball to be peeled after Striker makes h(i) and before Striker makes h(i+1) can be the *1st ball used* – the Reception-Ball, R(i), as in a Back-Peel – in this case the peel is described as occurring "After" h(i) or A-h(i); the *2nd ball used* – Pivot-Ball, V(i), as in a Transit-Peel – in this case the peel is On-the-Way-to h(i+1) or W-h(i+1), or the *3rd ball used* – the Pioneer-Ball, P(i+1), as in a Straight-Peel – in this case the peel is completed just before Striker makes h(i+1), Straight, S-h(i+1). We identify these as R(i,j), V(i,j), P(i+1,j) where i identifies Striker's Current-Hoop, and j identifies the Peeling-Hoop.

Naming the Balls: In COAC, and, in particular, with respect to peeling, it is useful to keep track of the CO of the Oppo Balls relative to your Partner Ball. These are named the "BEFORE-Partner-Ball", and the "AFTER-Partner-Ball". The chart below shows how the colors translate to names for each Striker:

Striker:	BEFORE	Partner	AFTER
u:	r	k	y
r:	k	y	u
k:	y	u	r
y:	u	r	k

Figures and Wording for Examples: This book makes extensive use of figures. Except for a couple of them – that are specifically identified – each figure start from a single configuration: with Striker set-up to make his hoop, h(i). This is intentional because it allows the balls at R(i), V(i), and P(i+1) to have reached their positions in any order facilitated by Load and Holds (L&Hs)[13] during play from the previous hoop, h(i-1).

In what follows, "→" means "becomes". The verbs "send" and "move" signify a rush/roquet combined with a croquet shot, and then, to save space, the details (which hopefully are obvious) are left to the reader to fill in. Physical gaps between figures are intended to add clarity to a panel (e.g., often indicating alternative ways to proceed). Finally, the distinction between a ball's Function and Position as in "u is sent from R(i) to V(i+1)", is sometimes blurred hopefully simplifying and clarifying the description.

[13] Figures in many croquet books show Striker ball-in-hand with the Pioneer-Ball at the Current-Hoop, about to croquet it to Reception. This presentation does not allow for L&Hs which are infrequent in T-AC but fundamental to COAC.

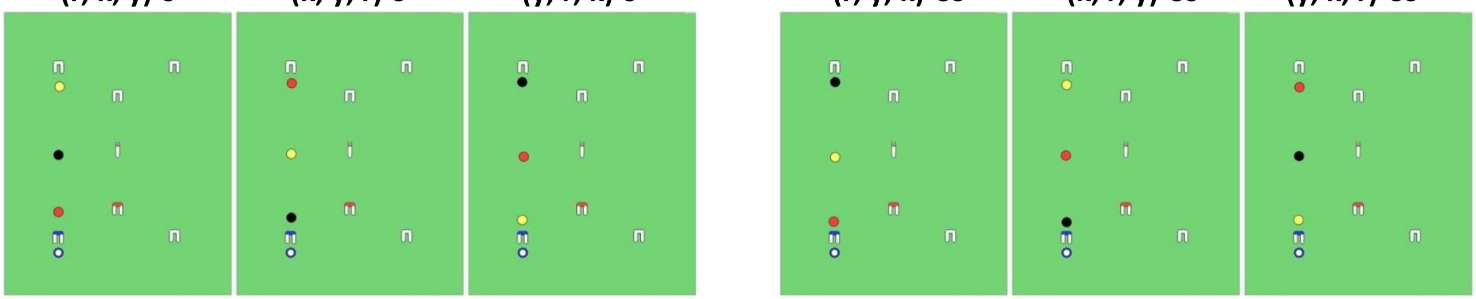
Color Order (CO) and Functional Order (FO)

Figures II.1 to II.6 show the six different ways Striker (u) can organize the non-Striker balls (r, k, and y) by color in break play. In each case, u is in position to make h(1)[14]. In normal play, Striker will make h(1) and then use (i.e., rush or roquet) the ball closest him, thereby establishing the Color Order (CO) listed above each figure[15] in parentheses. This CO will apply between h(1) and h(2), that is, until the next hoop, h(2) is made. Then the first ball roqueted after h(2) determines the CO between h(2) and h(3), etc.

By definition, the 1st ball Striker uses after making h(1) is the Reception-Ball, R(1). After that, if Striker is running a 4-ball break, and location is the only consideration, then the ball just to the north of R(1) is the 2nd ball Striker uses – the Pivot-Ball, V(1). Finally, the ball waiting at h(2) is the 3rd ball Striker uses – Pioneer-Ball, P(2).

Six Ways to Organize the balls in CO

(r, k, y)-s **(k, y, r)-s** **(y, r, k)-s** **(r, y, k)-os** **(k, r, y)-os** **(y, k, r)-os**



II.1 – h(1) **II.2 – h(1)** **II.3 – h(1)** **II.4 – h(1)** **II.5 – h(1)** **II.6 – h(1)**

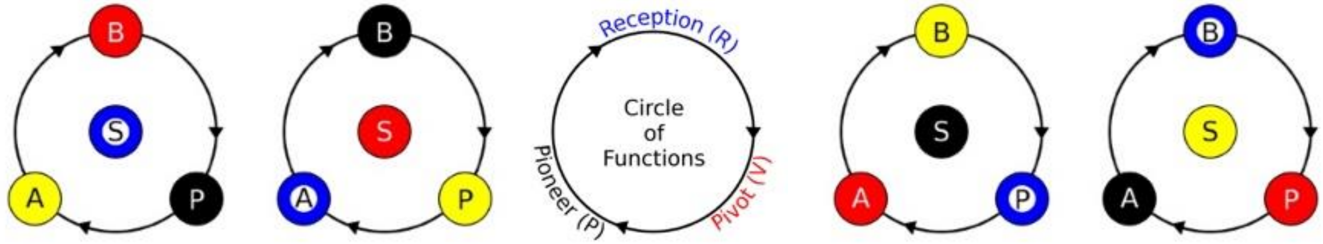
In Figures II.1, II.2, and II.3, the order of play, as dictated by CO, coincides with the way u would like to play the balls – their FO. But in Figures II.4, II.5, and II.6, the order of play conflicts with the FO that Striker would typically pursue in the absence of the CO Rule.

Avoiding or remedying the conflict between CO and FO is at the heart of COAC and is dealt with using Procedures.

[14] Below each figure is its #, and Striker's Hoop #. Above is the *projected* CO of the balls after the hoop, and whether they are in sync (s) or out of sync (os).

[15] This is not a requirement. Striker could shoot at a more distant ball, which would then set the CO, if that ball is successfully roqueted.

How Procedures Arise and the Chart of Procedures



From the start of a turn until an initial hoop is made, and then again from hoop to hoop as his break progresses, Striker must roquet the three non-Striker balls in CO as shown in the circles above. Striker can enter his circle at any point but then must progress in a clockwise fashion if he wants to use more than one ball in the process of making the next hoop.

Implicitly or explicitly, as he is following CO, Striker is reassigning "Functions" to each of the three non-Striker balls. He does this with "Procedures" that specify how the balls are to be played (how they are to be moved around the lawn) between making h(i) and h(i+1). For the purposes of this book, Procedures extend over just two hoops[16]. That is, collectively the balls go from having Functions [R(i), V(i), and P(i+1)] at h(i) to having Functions [R(i+1), V(i+1), and P(i+2)] at h(i+1). This is true no matter how many balls Striker actually uses (4, 3, or just 2) to make his next hoop. Alternative ways this can be accomplished are shown in the Chart of Procedures presented below.

To understand and use these Procedures to their fullest requires using the Arithmetic of CO. And key to the Arithmetic is the ability to "quantify" – measure – the movement of balls as they change Functions, which can be accomplished using the Circle of Functions shown above. A ball starts with one Function at h(i) and "rotates" to another at h(i+1). Therefore, moving in a clockwise fashion around the Circle of Functions from the starting Function to the ending Function provides a way of counting the number of Functional Steps ("FS") that are taken by each ball. Balls can move the same or a different number of FS as part of a Procedure. In all cases: R→V, V→P, and P→R are each one FS; R→P, V→R, and P→V are each two FS; and R→R, V→V, and P→P are each three FS.

[16] The 3-4-BALL Procedure is the only outlier to this 2-hoop rule. It is described further below.

Movement around the Circle of Functions is independent of which hoop a ball is coming from or going to. This means that moving 4, 7, or 10 steps around the circle gives the same answer as moving 1 step; moving 5, 8, or 11 steps gives the same answer as moving 2 steps and moving 3, 6, 9, or 12 steps gives the same answer as moving 0 steps. Therefore, as discussed below, the Arithmetic of CO can be simplified using Mod (3, j) where j is the number of steps taken.

It is important to note that CO is a rule, but FO is a convenience**.** Striker can choose any ball to use after making a hoop, as long as he can roquet it. That roquet sets the CO and it determines the 1st element of FO – the Reception-Ball. The chosen CO must then be followed until the next hoop is made. However, FO is flexible because: (i) Striker can vary the number of balls used to make his next hoop, skipping one or two balls in the process if he wants to; and (ii) Striker can double load a hoop, positioning the balls such that either ball can be used as Reception after he makes the hoop. Striker may think (and intend!) that his play has assigned Functions to the balls at the next hoop in one way only to find when he goes to continue his break at the next hoop that using them in different Functions is desirable. This is perfectly ok! In fact, it is useful to view all functional assignments as tentative (ambiguous) so as to have flexibility when a situation changes – when things go wrong, or when opportunities arise, especially with respect to peeling. This way of thinking is what makes for good play in COAC. Remember, Functions are only revealed by how balls are ultimately used.

Using 4 Balls: Suppose Striker is about to make h(i) and looks to progress to h(i+1) using all three non-Striker balls. By definition, the 1st ball Striker uses after making the hoop is R(i) and sets the CO for the other balls. R(i) can be sent to a position on the lawn associated with any of the three Functions of h(i+1): [R(i+1), V(i+1), or P(i+2)][17]. Striker does this as he goes to the 2nd ball. If CO and FO were in sync at h(i), then this 2nd ball will be V(i). It can be assigned either of the two remaining unallocated Functions as Striker goes to the 3rd ball. By default, the 3rd ball assumes the last available Function for h(i+1) as Striker goes to position at h(i+1).

There are six ways the three non-Striker balls can be reorganized when CO and FO start in sync. Thus, there are six 4-ball Procedures. The first four are used in multiple ways. They are grouped together in the 1st panel of the Chart of Procedures and are presented in the COAC Summary Sheet at the end of the book. The final two are grouped together in the 2nd panel of the Chart. While technically possible, we have found only limited uses for one of them, and no use for the other. All six 4-Ball Procedures share this arithmetic feature: Sum up the FS taken collectively by all three balls – the "Sum" – and then take Mod(3, Sum)[18] – the result is always zero.

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[17] That is, the "old R" – R(i) – can become "→": the "new R" – R(i+1), the "new V" – V(i+1), or the "new P" – P(i+2).

[18] Mod is the Modulo operator, abbreviated as Mod(b:j) which is the remainder after dividing j by b, where b can be any "base" number. For COAC, b=3. Using Mod(3:j) will produce only one of three results: (0, 1, or 2). We will see it again in Chapter III.

Using 3 Balls: Suppose Striker is about to make h(i) and looks to progress to h(i+1) using only two of the non-Striker balls. Again, by definition, the 1st ball Striker roquets after making h(i) is R(i) and sets the CO of the 2nd ball. If CO and FO are in sync at h(i), then the 2nd ball will have been positioned as if it is the V(i) in a 4-Ball break. In choosing to use only three balls to make his hoop, Striker will ignore the 3rd non-Striker ball which was positioned as the P(i+1)[19]. If, by design or default, CO and FO are out of sync at h(i), then the 2nd ball Striker goes to will be in CO but functionally will be P(i+1) and not V(i).

As with 4 balls, in the 3-Ball case, the first ball Striker uses is R(i) and can be assigned (i.e., sent to a location on the lawn associated with) any of the three functions related to the next hoop [R(i+1), V(i+1), and P(i+2)] as Striker goes to the 2nd ball. This ball, no matter how it was originally thought of, as V(i) or P(i+1), can take on either of the two unallocated Functions as Striker goes to position at h(i+1)[20]. Finally, the 3rd un-played ball will be assigned the Function not already assumed by the 1st or 2nd balls.

There are three Procedures involving just three balls. They are listed in the 3rd panel of the Chart. They share the same arithmetic as their 4-ball counterparts – Sum up the FS taken collectively by all three balls and then take Mod(3, Sum) – the result is always zero.

Using 2 Balls: Suppose Striker is about to make h(i) and looks to make h(i+1) using only one of the non-Striker balls. Again, by definition, the 1st ball Striker uses after making h(i) is R(i). But now, Striker needs to go and make h(i+1) and so Striker sends R(i) to R(i+1). as Striker goes to position at h(i+1). The other two balls do not move and maintain their Functions, now associated with h(i+1). There is only one 2-ball Procedure. It is listed in the 4th panel of the Chart. It too shares arithmetic feature of the 4-ball and 3-ball Procedures – Sum up the FS taken collectively by all three balls and then take Mod(3, Sum) – the result is always zero.

One Useful Outlier: Finally, one Procedure that is a hybrid between the 4 and 3-Ball Procedures is presented. It does not fit either pattern and it extends over multiple hoops but is useful in actual play and therefore it is presented in the 5th and final panel of the Chart of Procedures.

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[19] Ignoring this ball is a possibility and can have value if the CO for the next hoop needs to be altered, but, in general, it is best to use all the balls if you can. In fact, we will see that there is a 4-Ball Procedure that incorporates the ball at P(i+1) while also allowing for any desired CO to be established for the next hoop.

[20] However, if the 1st ball [R(i)] was not assigned R(i+1), and if the 3rd ball, the one that is not going to be played, was not already at R(i+1), then the 2nd ball needs to be assigned R(i+1), or else Striker will not have a ball to go to after making h(i+1)!

The Chart of Procedures

The data in this chart tells how the three Functions R(i), V(i) and P(i+1) are reassigned by each Procedure as Striker plays from h(i) to h(i+1). It also tells if a Load-and-Hold (L&H) is involved, when the Procedure can be used (i.e., starting with CO and FO in sync, or not), and if CO and FO are still in sync at the end of the Procedure. An "*" signifies that a ball is skipped during the Procedure, but still has its Function changed. Finally, the three columns labelled "Steps" tell how many Functional Steps, FS, a Procedure takes each individual ball around the Functional Circle (in a clockwise direction) from its starting position.

Name	R(i)	Steps	V(i)	Steps	P(i+1)	Steps	L&H	Sync @ Start	Sync @ Finish
STANDARD	V(i+1)	1	P(i+2)	1	R(i+1)	1	No	Yes	Yes
TAC	P(i+2)	2	V(i+1)	0	R(i+1)	1	No	Yes	No
EXPEDITE	P(i+2)	2	R(i+1)	2	V(i+1)	2	Yes	Yes	Yes
REPEAT	R(i+1)	0	V(i+1)	0	P(i+2)	0	Yes	Yes	Yes
LIMITED	V(i+1)	1	R(i+1)	2	P(i+2)	0	Yes	Yes	No
MYSTERY	R(i+1)	0	P(i+2)	1	V(i+1)	2	Yes	Yes	No
3-FIX	P(i+2)	2	V(i+1)*	0	R(i+1)	1	No	No	Yes
3-BALL	P(i+2)	2	R(i+1)	2	V(i+1)*	2	No	Yes	Yes
3-L&H	R(i+1)	0	V(i+1)*	0	P(i+2)	0	Yes	Yes	Yes
2-BALL	R(i+1)	0	V(i+1)*	0	P(i+2)*	0	No	Yes	Yes
3-4-BALL[21]	V(i+2)		P(i+2)		R(i+1)		No	No	No

[21] This is a hybrid between 3 and 4-ball Procedures. To be made operational, it is preceded by a TAC wherein R(i)→V(i+2), however, this ball is placed at P(i+3).

Procedures Without Load & Holds (L&Hs)

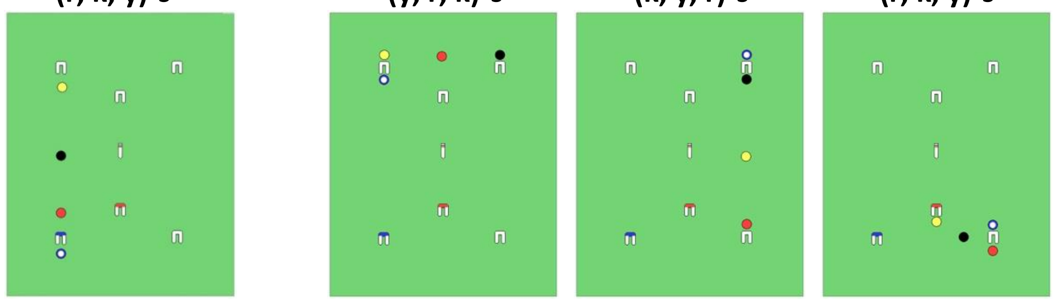
STANDARD: *[R(i)→V(i+1)], [V(i)→P(i+2)], [P(i+1)→R(i+1)]*

Suppose Striker starts a turn with CO and FO in sync as shown above in Figures II.1, II.2, and II.3 for h(1). Then the simplest way to run a 4-ball break in COAC while staying in sync, is to engage in Pivot-Swaps at each hoop. This is the STANDARD Procedure; it is fundamental to COAC, so much so that, once the balls are appropriately organized, Striker can use just STANDARDs to set a leave or to complete a Triple-Peel, as is shown in later chapters.

Arithmetic: CO and FO start in sync. STANDARD moves each ball one FS clockwise around the Functional Circle: R→V, V→P, and P→R. CO and FO remain in sync.

The next panel shows that STANDARDs maintain the sync of CO and FO at each hoop and repeat the original CO every 3 hoops.

Start (r, k, y)-s | **STANDARD (y, r, k)-s** | **STANDARD (k, y, r)-s** | **STANDARD (r, k, y)-s**



II.1 – h(1) | **II.7 – h(2)** | **II.8 – h(3)** | **II.9 – h(4)**

Figure II.1: u is Striker and is in position at h(1). r is R(1), k is V(1) and y is P(2). u makes h(1) and goes to r. u sends r from R(1) to V(2) – [CO is (r, k, y)] – as u goes to k. u sends k from V(1) to P(3) as u goes to y. u sends y from P(2) to R(2) as u goes to position at h(2), Figure II.7, STANDARD.

Figure II.7: u makes h(2) and goes to y. u sends y from R(2) to V(3) – [CO is (y, r, k)] – as u goes to r. u sends r from V(2) to P(4) as u goes to k. u sends k from P(3) to R(3) as u goes to position at h(3), Figure II.8, STANDARD.

Figure II.8: u makes h(3) and goes to k. u sends k from R(3) to V(4) – [CO is (k, y, r)] – as u goes to y. u sends y from V(3) to P(5), as u goes to r. u sends r from P(4) to R(4) as u goes to position at h(4), Figure II.9, STANDARD.

The balls have the same CO and FO in Figure II.9 as they did in Figure II.1: r is R, k is V, and y is P. This example illustrates that repeated applications of the STANDARD Procedure replicate CO every three hoops, while maintaining FO at each hoop.

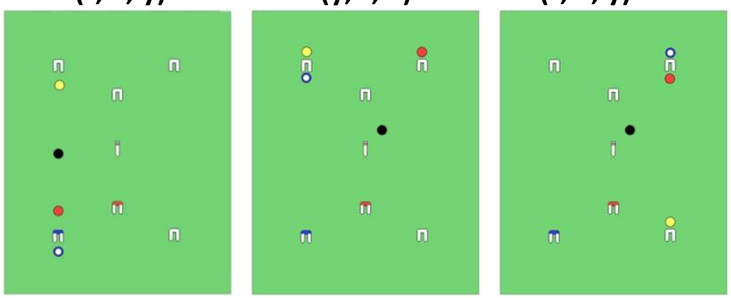
This 3-hoop cycle is fundamental to COAC.

TAC: *[R(i)→P(i+2)], [V(i)→V(i+2)], [P(i+1)→R(i+1)]*

Arithmetic: CO and FO start in sync, TAC moves R two FS →P, V three FS →V, and P one step →R. CO and FO are out of sync.

While running a 4-ball break in T-AC, Striker often sends the Reception-Ball to be the Pioneer-Ball two hoops ahead, goes to the Pivot-Ball and moves it to a new position but maintains its Function as Pivot-Ball, and then goes to the Pioneer-Ball and moves it to Reception as Striker goes to position at that hoop. This is the TAC Procedure. It also works in COAC when CO and FO start in sync as shown again in Figure II.1. The result of one application of TAC is shown in Figure II.10, now with CO and FO out of sync.

Start (r, k, y)-s | **TAC (y, r, k)-os** | **3-FIX (r, k, y)-s**



II.1 – h(1) | **II.10 – h(2)** | **II.11 – h(3)**

The TAC Procedure is ingrained in all who play T-AC – it is usually the mainstay of running breaks. It has uses in COAC, but always at a cost – CO and FO end out of sync. If you ever have the urge to proceed R(i)→P(i+2), then please make sure it is necessary or desirable!

Figure II.1: u makes h(1) and goes to r. u sends r from R(1) to P(3) – [CO is (r, k, y)] – as u goes to k. u sends k from V(1) to V(2) as u goes to y. u sends y from P(2) to R(2) as u goes to position at h(2), Figure II.10, TAC.

Is Brute Force Required? *When CO and FO are out of sync, as they are in Figure II.10, then brute force can return them to sync. For example, u could follow the STANDARD Procedure and send y from R(2) to V(3) as u goes to r. Then u could send r from P(3) to P(4) as u goes to k. Finally, u could rush k from V(2) to P(3) and then croquet it to R(3) as u goes to position at h(3). This could work, but there is a better way!*

3-FIX: *[R(i)→P(i+2)], [V(i)→V(i+2)]*, [P(i+1)→R(i+1)]*

Three Procedures (TAC – described above, along with two others – LIMITED, and MYSTERY – described below) break the sync of CO and FO. Virtually all of the time, an application of one of these Procedures will be followed by an application of the 3-FIX Procedure. This is because 3-FIX is a convenient way to reestablish the sync of CO and FO.

Arithmetic: Starting with CO and FO out of sync, using the 3-FIX Procedure moves R two FS →P. Striker does not touch/roquet V but it still moves three FS →V. Then Striker moves P one FS →R. CO and FO are returned to sync.

Figure II.10: u makes h(2) and goes to y. u sends y from R(2) to P(4) – [CO is (y, r, k)] – as u goes to r. u sends r from P(3) to R(3) as u goes to position at h(3), Figure II.11, 3-FIX.

Striker does not use/roquet the Pivot-Ball in 3-FIX, but that does not prevent it from being converted (Functionally) from V(2) to V(3). As such, at h(3), CO and FO are back in sync.

Combining TAC and 3-FIX: TAC followed by 3-FIX restores the sync of CO and FO and also repeats the original CO after just two hoops. In Figure II.1, r is R, k is V and y is P. These roles and colors are repeated two hoops later, Figure II.11. This outcome is very useful and illustrates that Striker can run breaks maintaining a constant Pivot-Ball by alternating TAC and 3-FIX. The downside is that the position of the Pivot-Ball can only be modified every other hoop. Over a 2-hoop cycle [TAC + 3-FIX] moves all three balls forward three FS – returning them to their original functional roles, albeit now positioned two hoops forward in the break.

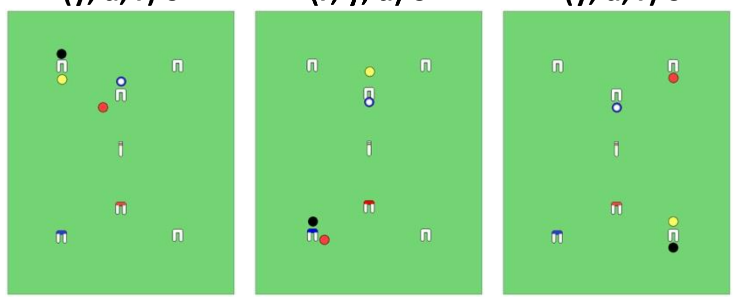
3-BALL: *[R(i)→P(i+2)], [V(i)→R(i+1)], [P(i+1)→V(i+1)]**

<u>Arithmetic</u>: Starting with CO and FO in sync, 3-BALL involves only two non-Striker balls but moves all three of the balls two FS: R→P, V→R, and P→V. CO and FO start and remain sync.

<u>Figure II.12</u> is taken from a peeling turn. Here k is Striker and is for h(7). y is R(7), u is V(7,11) and r is E(8,11). k is about to make h(7) and wants to peel u, the Pivot-Ball, at h(11) W-h(8), and then use r as an escape ball, rushing it to h(8).

<u>Figure II.12</u>: k makes h(7) and goes to y. k sends y from R(7) to V(8) – [CO is (y, u, r)] – as k goes to u. k attempts the peel at h(11), W-h(8), converting u from V(7,11) to M(9,11) as k goes to r. k rushes r from E(8,11) to P(8) and then croquets it to R(8) as k goes to position at h(8), <u>Figure II.13</u>, STANDARD. (*y is sent North of h(11) as a "Helper-Ball" that will be discussed later).*

Start (y, u, r)-s | **STANDARD (r, y, u)-s** | **3-BALL (y, u, r)-s**



II.12 – h(7) | **II.13 – h(8)** | **II.14 – h(9)**

This was a Transit-Peel completed using STANDARD with Peelee as the Pivot-Ball. As discussed above, STANDARD advances all balls one FS, converting the Pivot-Ball (Peelee) into the Pioneer-Ball for h(9), albeit misplaced near h(11), hence M(9,11). Having a Misplaced-Pioneer like this after a Transit-Peel is part and parcel of COAC and is a challenge under the best of conditions, [i.e., when the peel is clean and the former Peelee can be rushed from M(9,11) to h(9)]. But it is particularly awkward if the peel fails, if Peelee is in the jaws, or if Peelee just dribbles through and cannot be rushed to the next hoop. In this case, 3-BALL can come to the rescue.

<u>Figure II.13</u>: k makes h(8) and goes to r. k sends r from R(8) to P(10) – [CO is (r, y, u)] – as k goes to y. k rushes y from V(8) to P(9) and then croquets it to R(9) as k goes to position at h(9), <u>Figure II.14</u>, 3-BALL.

Here Striker intentionally ignores u. Almost magically, and without moving, u morphs from Pioneer-Ball to Pivot-Ball! This is a manifestation of 3-BALL wherein the next hoop is made with the Pivot-Ball instead of the Pioneer-Ball, even though the Pioneer-Ball is technically available.

Procedures with L&Hs

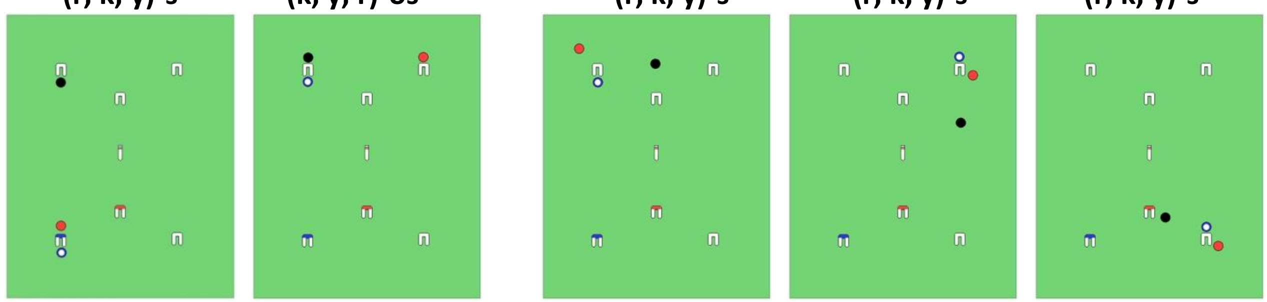
The term Load-and-Hold, "L&H", is invoked in this book whenever the ball Striker uses just *before* making a hoop, h(i), is not the same as the ball he uses just *after* making that hoop. L&Hs add tremendous flexibility to how Striker can use/position the balls, but also increases the difficulty of maintaining a break. The length/difficulty of a L&H varies by Procedure and location on the lawn.

3-L&H: *[R(i)→R(i+1)], [V(i)→V(i+1)]*, [P(i+1)→P(i+2)]*

Arithmetic: 3-L&H has Striker interact with just two non-Striker balls but moves all balls three FS: R→R, V→V, and P→P. The second ball, be it V or P, is moved with a L&H. The balls start in sync and remain in sync.

Dead End | **Continuing Break**

Start (r, k, y)-s | **3-FIX (k, y, r)-os** | **3-L&H (r, k, y)-s** | **3-L&H (r, k, y)-s** | **3-L&H (r, k, y)-s**



II.15 – h(1) | **II.16 – h(2)** | **II.17 – h(2)** | **II.18 – h(3)** | **II.19 – h(4)**

Suppose Striker (u) has access to r and k, but not y. This can happen during the opening of a COAC Game – k plays first, and r plays second. u will play next as the 3rd turn, without access to y. *Even though y is not in the game, y is part of the CO!* And it can happen at any point during a game if the conditions are such that u chooses to ignore y. In T-AC a player can deal with either of these situations by running a 3-ball break – having r be the Pioneer/Reception-Ball at one hoop and k be the Pioneer/Reception ball at the next. This does not work in COAC if more than one hoop is involved – Striker will violate CO the first time he tries to go to r after using k, having not gone to y. The CO will be (r, k, y) or (k, y, r), depending upon which ball u goes to first after making a hoop, r or k. u can go to k after r, but not vice versa.

This is shown starting in <u>Figure II.15.</u> u is in position to make h(1). r is R(1) and k is P(2). y is not in the game. u makes h(1) and goes to r. u sends r from R(1) to P(3) – [CO is (r, k, y)] – as u goes to k. u roquets k and sends it from P(2) to R(2) as u goes to position at h(2), <u>Figure II.16</u>, 3-FIX. This is a dead end. u can make h(2) but, other than "2-balling" it to h(3), u cannot proceed.

<u>Figures II.17</u> to <u>II.19</u> show a 3-ball break that follows CO. The same ball – in this case r – is used as Reception at all hoops, and the same ball – in this case k – is used as the Pioneer – the last ball used before making the hoop – k at all next hoops. This is accomplished with a L&H involving k at each hoop and a rush to get it to P(i+1). Again, consider <u>Figure II.15</u>: u makes h(1) and goes to r. u sends r from R(1) to R(2) – [CO is (r, k, y)] – as u goes to k. This time, with a short L&H, u sends k to V(2) while going to position at h(2), <u>Figure II.17</u>, 3-L&H.

<u>Figure II.17</u>: u makes h(2) and goes to r. u sends r from R(2) to R(3) – [CO is (r, k, y)] – as u goes to k. Then, with a short L&H, u sends k from P(3) to P(4) while going to position at h(3), <u>Figure II.18</u>, 3-L&H.

<u>Figure II.18</u>: u makes h(3) and goes to r. u sends r from R(3) to R(4) – [CO is (r, k, y)] – as u goes to k. Then, with a short L&H, u sends k from P(4) to P(5) while going to position at h(4), <u>Figure II.19</u>, 3-L&H.

Striker can run a 3-ball break using L&Hs involving any two of the other three balls. The Pioneer-Ball – the ball that will be the croquet ball in the L&H – will be the ball that *precedes* the missing ball in CO.

Technically, 3-L&H can be used to restore CO after a TAC, LIMITED or MYSTERY Procedure as will be explained below.

EXPEDITE: *[R(i)→P(i+2)], [V(i)→R(i+1)], [P(i+1)→V(i+1)]*

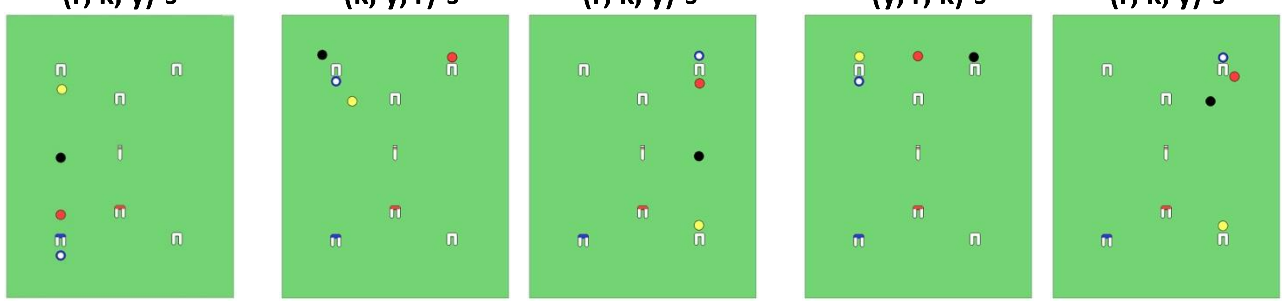
Arithmetic: Starting with CO and FO in sync, EXPEDITE moves the Functions of all three balls two steps forward: R→P, V→R, and P→V. The movement of P involves a L&H. CO and FO remain in sync[22].

Figure II.1: u makes h(1) and goes to r. u sends r from R(1) to P(3) – [CO is (r, k, y)] – as u goes to k. u sends k from V(1) to R(2) going to y. u sends y from P(2) to V(2) with a short L&H as u goes to position at h(2), Figure II.20, EXPEDITE.

Figure II.20: u makes h(2) and goes to k. u sends k from R(2) to V(3) – [CO is (k, y, r)] – as u goes to y. u sends y from V(2) to P(4) as u goes to r. u sends r from P(3) to R(3) as u goes to position at h(3), Figure II.21 STANDARD.

CO and FO are the same in Figures II.1 and II.21. This shows that combining EXPEDITE with one iteration of STANDARD repeats the CO and FO of the balls every two hoops. That is, the Arithmetic of [EXPEDITE + STANDARD] is to move all balls forward three FS – which returns them to their original functions and colors. This result is the same for [TAC + 3-FIX] (see Figures II.10 and II.11) with the added outcome that the Pivot-Ball is adjusted twice, which may or may not be useful.

Start (r, k, y)-s | **[EXPEDITE + STANDARD]** **(k, y, r)-s** | **(r, k, y)-s** | **[STANDARD + EXPEDITE]** **(y, r, k)-s** | **(r, k, y)-s**



II.1 – h(1) | **II.20 – h(2)** | **II.21 – h(3)** | **II.22 – h(2)** | **II.23 – h(3)**

[22] The 3-BALL Procedure creates the same CO as does the EXPEDITE Procedure, but 3-BALL ignores the ball at P(i+1), which may or may not be helpful.

Figure II.20 and II.21 showed the result of [EXPEDITE + STANDARD]. Figures II.22 and II.23 show it for [STANDARD + EXPEDITE] illustrating that these Procedures can be used in either order and generate the same result (CO and FO) after two hoops[23].

REPEAT: *[R(i)→R(i+1)], [V(i)→V(i+1)], [P(i+1)→P(i+2)]*

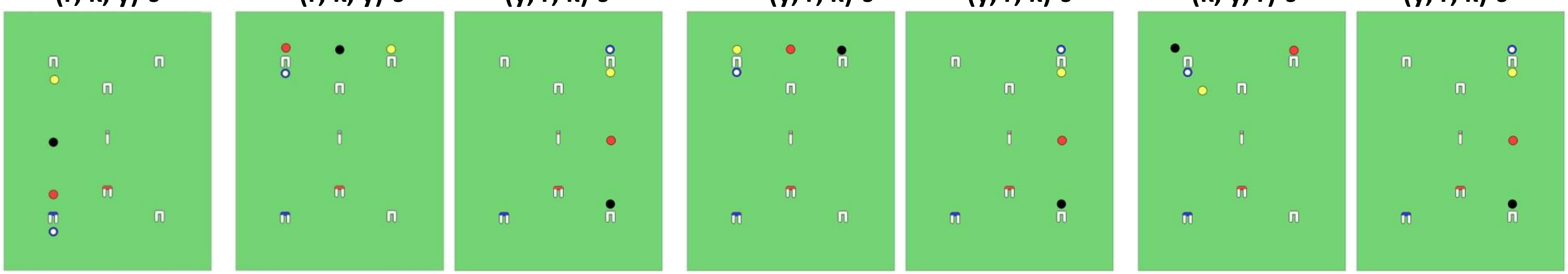
Arithmetic: Starting with CO and FO in sync, REPEAT moves each ball three FS, returning them to their original functions. R→R, V→V and P→P, with a L&H on P. This Procedure maintains the balls with unchanging CO and FO at each hoop – hence the name.

REPEAT is extremely useful when it is desirable to speed-up the peeling process by maintaining Peelee as the repeating Pivot-Ball.

Figure II.1: u makes h(1) and goes to r. u sends r from R(1) to R(2) – [CO is (r, k, y)] – as r goes to k. u sends k from V(1) to V(2) as u goes to y. Then, with a long L&H, u sends y from P(2) to P(3) as u gains position at h(2), Figure II.24, REPEAT.

Figure II.24: It is often useful to follow REPEAT with STANDARD. u makes h(2) and goes to r. u sends r from R(2) to V(3) – [CO is (r, k, y)] – as r goes to k. u sends k from V(2) to P(4) as u goes to y. u sends y from P(3) to R(3) as u gains position at h(3), Figure II.25, STANDARD.

Start	[REPEAT +	STANDARD]	[STANDARD +	REPEAT]	[EXPEDITE +	EXPEDITE]
(r, k, y)-s	**(r, k, y)-s**	**(y, r, k)-s**	**(y, r, k)-s**	**(y, r, k)-s**	**(k, y, r)-s**	**(y, r, k)-s**



II.1 – h(1)	**II.24 – h(2)**	**II.25 – h(3)**	**II.26 – h(2)**	**II.27 – h(3)**	**II.28 – h(2)**	**II.29 – h(3)**

[23] This is not the case for TAC and 3-FIX. They cannot be played in either order.

As was the case with [EXPEDITE and STANDARD], [REPEAT and STANDARD] can be executed in either order and obtain the same CO and FO – compare Figures II.24 and II.25 [REPEAT + STANDARD] to Figures II.26 and II.27 [STANDARD + REPEAT].

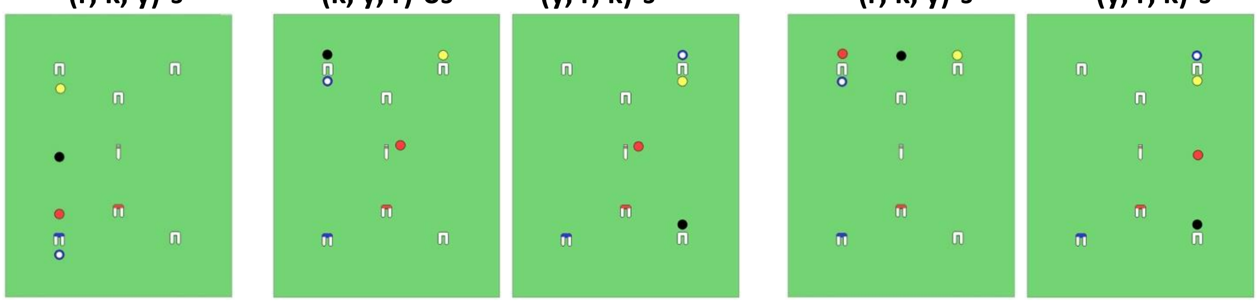
Figure II.28 is the result of an EXPEDITE applied to Figure II.1; Figure II.29 is the result of EXPEDITE applied to Figure II.28. Note that Figures II.25, II.27 and II.29 are identical. This establishes that [EXPEDITE + EXPEDITE] yields the same CO and FO as [REPEAT + STANDARD] or [STANDARD + REPEAT]. Practically speaking, this means that Striker can use two EXPEDITEs, instead of a REPEAT and a STANDARD, to reorient CO and FO as needed to peel or set leaves. This is very useful when Striker has two hoops available and the execution of [REPEAT + STANDARD], or vice versa, is problematic but [EXPEDITE + EXPEDITE] is possible.

Two Other 4-Ball Procedures: There are two other 4-ball Procedures that involve L&Hs. A couple of uses for one of them has been found, the LIMITED Procedure; but none have been found for the other, the MYSTERY Procedure.

LIMITED: *[R(i)→V(i+1)], [V(i)→R(i+1)], [P(i+1)→P(i+2)]*

Arithmetic: Starting with CO and FO in sync, LIMITED moves R one FS →V, V two FS →R, and, with a L&H, P three FS →P. Sync can be restored by an application of 3-FIX.

Start	[LIMITED +	3-FIX]	[REPEAT +	STANDARD]
(r, k, y)-s	(k, y, r)-os	(y, r, k)-s	(r, k, y)-s	(y, r, k)-s



II.1 – h(1)	II.30 – h(2)	II.31 – h(3)	II.32 – h(2)	II.33 – h(3)

From Figure II.1: u makes h(1) and goes to r. u sends r from R(1) to V(2) – [CO is (r, k, y)] – as u goes to k. u sends k from V(1) to R(2) as u goes to y. Then, with a long L&H, u sends y from P(2) to P(3) as u goes to position at h(2), Figure II.30, LIMITED. Note: CO and FO, are out of sync.

Figure II.30: u makes h(2) and goes to k. u sends k from R(2) to P(4) – [CO is (k, y, r))] – as u goes to y. u sends y from P(3) to R(3) as u goes to position at h(3), Figure II.31, 3-FIX.

Note that [LIMITED + 3-FIX] = [REPEAT + STANDARD] as is shown by comparing Figures II.30 and II.31 to Figures II.32 and II.33. This equivalence has a particular application in peeling that will be developed later.

MYSTERY: *[R(i)→R(i+1)], [V(i)→P(i+2)],[P(i+1)→V(i+1)]*

Arithmetic: Starting with CO and FO in sync, MYSTERY moves R three FS →R, V one FS →P, and, with a L&H, P two FS to →V. CO and FO are not in sync. Sync can be restored by an application of 3-FIX.

Figure II.1: u makes h(1) and goes to r. u sends r from R(1) to R(2) – [CO is (r, k, y)] – as u goes to k. u sends k from V(1) to P(3) as u goes to y. Then, with a L&H, u sends y from P(2) to V(2) as u goes to position at h(2), Figure II.34, MYSTERY.

Figure II.34: u makes h(2) and goes to r. u sends r from R(2) to P(4) – [CO is (r, k, y))] – as u goes to k. u sends k from P(3) to R(3) as u goes to position at h(3), Figure II.35, 3-FIX.

Start (r, k, y)-s | **MYSTERY (r, k, y)-os** | **3-FIX (k, y, r)-s**

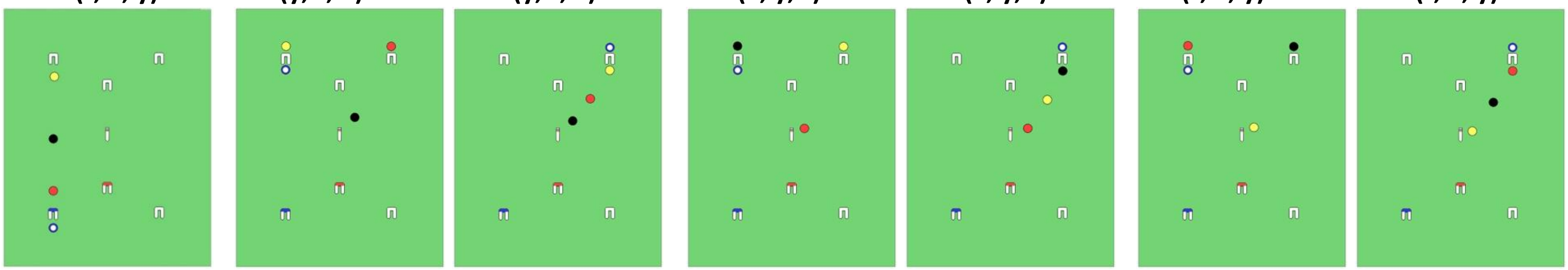
II.1 – h(1) | **II.34 – h(2)** | **II.35 – h(3)**

To date, no meaningful use for MYSTERY in COAC has been found. FYI, [MYSTERY + 3-FIX] = [STANDARD + STANDARD].

A Technical Note

Figures II.10 and II.11, II.30 and II.31, and II.34 and II.35 from above show how the 3-FIX Procedure can be used to resynchronize CO and FO after an application of TAC, LIMITED, or MYSTERY causes them to get out of sync. As a technical matter, 3-L&H can also restore the sync of CO and FO, as demonstrated in the next panel of figures.

Start	[TAC +	3-L&H]	[LIMITED +	3-L&H]	[MYSTERY +	3-L&H]
(r, k, y)-s	(y, r, k)-os	(y, r, k)-s	(k, y, r)-os	(k, y, r)-s	(r, k, y)-os	(r, k, y)-s



II.1 – h(1)	II. 10 – h(2)	II.36 – h(3)	II.30 – h(2)	II.37 – h(3)	II.34 – h(2)	II.38 – h(3)

In all three cases 3-L&H restores the sync of CO and FO. But there is not a properly-placed Pioneer-Ball, Figures II.36, II.37, and II.38, which forces Striker to rebuild his break. However, starting from Figure II.1 at h(1), there is a way to get the results shown at h(3) that provides a proper Pioneer-Ball: [TAC +3-L&H] = [EXPEDITE + EXPEDITE]; [LIMITED + 3-L&H] = [STANDARD + STANDARD]; and [MYSTERY + 3-L&H] = [EXPEDITE + STANDARD].

Other Procedures

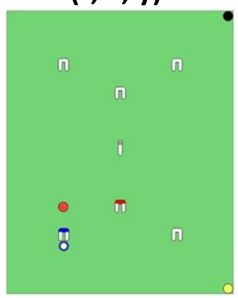
2-BALL: *[R(i) →P(i+1)→R(i+1)], [V(i)→V(i+1)]*, [P(i+1)→P(i+2)]**

Arithmetic: 2-BALL makes the Current-Hoop – moving R three FS →R. V and P are not roqueted and maintain their Functions, now for the next hoop.

Figure II.39: u makes h(1) and goes to r. u rushes r from R(1) to P(2) and then sends it to R(2) – [CO is (r, k, y)] – while u goes to position at h(2), Figure II.40, 2-BALL.

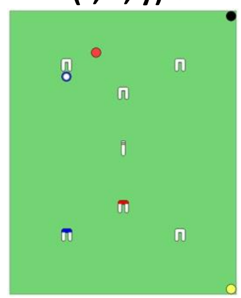
With the 2-BALL Procedure, R(i)→R(i+1). However, if at an earlier time in the break, a ball, in particular the BEFORE-Ball, is sent to the position that is R(i+1), then it is possible, with a L&H to send R(i)→V(i+1). This possibility, a "2-L&H Procedure", does not fit the pattern of Procedures described above, but it can give Striker added options when setting leaves.

Start
(r, k, y)-s



II.39 – h(1)

2-BALL
(r, k, y)-s

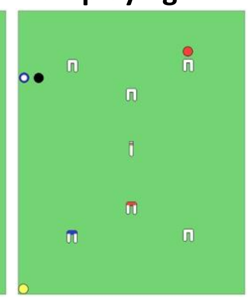


II.40 – h(2)

r on the
playing-side

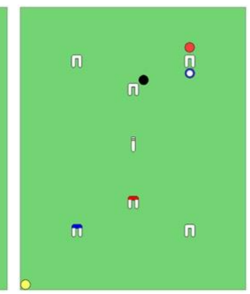
II.41 – h(10)

r on the
non-playing-side



II.42 – h(10)

u builds a
3-Ball break



II.43 – h(10)

Consider <u>Figures II.41</u> and II.42. In both situations, u/k set a leave for u [for h(10)] and y has shot into c1. u has a rush on k to h(10). It would be "normal" for u to rush k to h(11) and then take-off to y, and then back to r to make h(10). This can be treacherous if c1 is not in good shape. But, in setting the leave, if r is placed on the non-playing side of h(10), <u>Figure II.42</u>, instead of on the playing side, <u>Figure II.41</u>, then, with a short L&H, u can avoid going to y. u sends k to P(11) while u holds for position at h(10), <u>Figure II.43</u>. After making h(10) u goes to r and then to k to make h(11), and perhaps finish with just three balls.

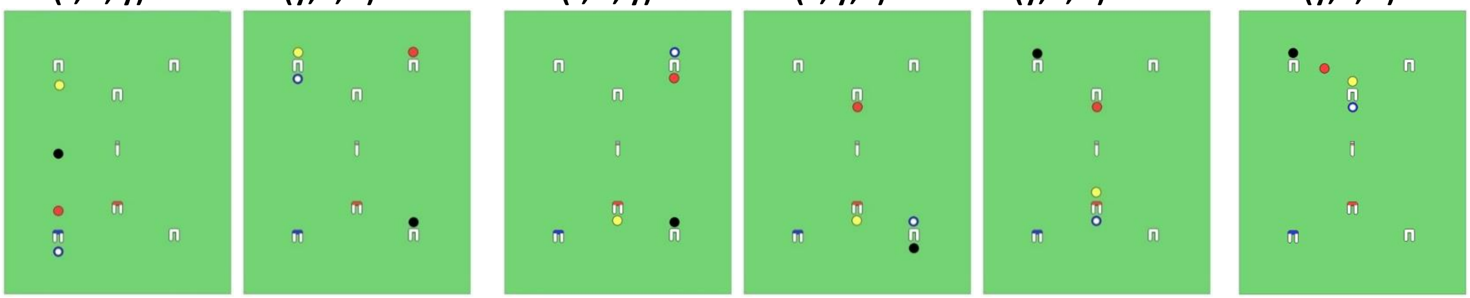
3-4-BALL: *[R(i)→V(i+1) but at P(i+3)], [V(i)→P(i+2)]*, [P(i+1)→R(i+1)]*

This final Procedure is a hybrid between three and four ball procedures and spans more than just two hoops. It is included because it is useful in actual play.

<u>Arithmetic:</u> 3-4-BALL has CO and FO out of sync at all times while it is being used in a break. It uses just two balls to make each hoop but rotates the balls that are used. This is facilitated by initially moving the Reception-Ball to Pivot but to a particular spot – it goes to Pioneer three hoops ahead.

Figure II.1: u is striker and is in position to make h(1), r is R(1), k is V(1) and y is P(2). u makes h(1) and goes to r. u sends r from R(1) to P(3) – [CO is (r, k, y)] – as u goes to k. u sends k from V(1) to P(4) as u goes to y. u sends y from P(2) to R(2) as u goes to position at h(2), Figure II.44. *This is an application of TAC modified to send V(1) to P(4) – rather than to mid-lawn, typical of V(2).*

Start	TAC	3-4-BALL	3-4-BALL	3-4-BALL	3-L&H
(r, k, y)-s	(y, r, k)-os	(r, k, y)-os	(k, y, r)-os	(y, r, k)-os	(y, r, k)-s



II.1 – h(1)	II.44 – h(2)	II.45 – h(3)	II.46 – h(4)	II.47 – h(5)	II.48 – h(5)

Figure II.44: u makes h(2) and goes to y. u sends y three hoops ahead, from R(2) to P(5) – [CO is (y, r, k)] – as u goes to r. u sends r from P(3) to R(3) as u goes to position at h(3). k is not roqueted but is functionally advanced automatically from V(2) to P(4), Figure II.45, 3-4-BALL.

Progressing from Figure II.45 to Figure II.46 and from Figure II.46 to Figure II.47 involves repeated applications of 3-4-BALL. It is possible to stop using 3-4-BALL and re-sync CO and FO at any time using 3-L&H: Figure II.47: u makes h(5) and goes to y. u sends y from R(5) to R(6) – [CO is (y, r, k)] – as u goes to r. u sends r from P(6) to V(6) as u goes to position at h(6), Figure II.48, 3-L&H. In the process k is not moved but is functionally advanced from V(6) to P(7).

III.. THE ARITHMETIC OF CO

The Prior-Hoop Construct

Balls are often played at the start of a turn from distant areas of the lawn to the Current-Hoop. The lack of an initial Functional Structure can make it difficult to decide what Procedure to use and how it will impact the break.

The "Prior-Hoop" Construct can help. Before starting a turn, imagine you are about to make a "hypothetical" hoop that is numbered one prior to your actual hoop. This works for all starts and at all hoops, but it is particularly useful when Striker is for h(1) and the Prior-Hoop is h(0), the 0^{th} hoop. The Prior-Hoop Construct involves two-steps that are outlined below, using h(0) as the example.

1. Determine the Order of Play: Mentally assign Functions to the balls relative to h(0): The 1^{st} ball used is R(0). It determines the CO between h(0) and h(1). The 2^{nd} ball, if any, must follow in CO and will be V(0). The 3^{rd} ball, if any, must again follow in CO and will be P(1). This order of play establishes [R(0), V(0), P(1)].

2. Determine your Procedure: R(0), the 1^{st} ball, can be sent to a position associated with any of the three Functions related to h(1) – [R(1), V(1), P(2)]. Then V(0), the 2^{nd} ball, can be sent to either of the two remaining Functions, and P(1), the 3^{rd} ball, will adopt the remaining unallocated Function. These transformations define a Procedure for play from h(0) to h(1).

Choosing [R(0), V(0), P(1)] is usually the easy part – the balls are where they are as you start a turn. What is not obvious is the best transformation from [R(0), V(0), P(1)] to [R(1), V(1), P(2)]. It is the Arithmetic of CO, that helps determine how to proceed.

Answering COAC Questions

Striker is in position at h(i) with CO and FO in sync. What Procedure(s) should he use, so that when he is in position at h(i+j), (j hoops ahead) the balls will have the CO and FO he wants? This question can be answered in four steps using the "Arithmetic of CO":

(i) Identify one of the non-Striker balls at h(i) as the Reference-Ball ("RB"). This ball will have a current Function – (R, V, or P) – name it "HAVE". *RB can be any of the balls but should be the one that makes the most intuitive sense to you under the circumstances. It is often Partner. Note that the Function of the RB is associated with a position on the Functional Circle*

(R, V, or P) and is not identified with a particular hoop number [R(i), V(i), P(i+1)].

(ii) Determine what Function the RB wants/needs to have after j hoops– (R, V, or P) – name it “WANT”. The *RB is often chosen with WANT in mind. (e.g., I want Partner to be Pivot in j hoops so I can peel him on the way to the next hoop, etc.)*

(iii) Starting from HAVE, see what function you get by rotating j Functional Steps (FS) around the Functional Circle. Name this Function – “GET”. Then make a mental note of the two Functions that follow GET in rotation – name them “GET+1” and “GET+2”. The triad [GET, GET+1, GET+2] can be (R, V, P), (V, P, R) or (P, R, V). *GET is what you get in j hoops starting from HAVE and using only STANDARDs to proceed.*

(iv) Compare WANT to [GET, GET+1, GET+2] and carry-on using one of the three strategies identified below:

1. If WANT = GET : Make j hoops with STANDARD (or its equivalent).
2. If WANT = GET+1 : Make 1 hoop with EXPEDITE (or its equivalent) during the next j hoops and (j-1) with STANDARD.
3. If WANT = GET+2 : Make 1 hoop with REPEAT (or its equivalent) during the next j hoops and (j-1) with STANDARD.

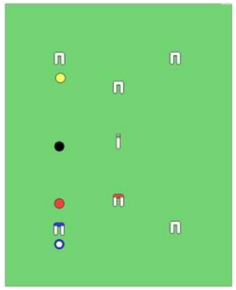
<u>A Simplification when j>=3</u>**.** The Functional Circle is a three-element repeating cycle. Moving one FS around it from any starting point has the same result as moving 4, 7 or 10; moving two FS is the same as moving 5, 8, or 11; and moving 3, 6, 9, or 12 FS is the same as moving zero FS. This cyclical concept is captured in the Modulo operator, abbreviated as Mod(b:j) which is the remainder after dividing j by b, where b can be any “base” number. For COAC, b=3. Using Mod(3:j) will produce only one of three results: (0, 1, or 2). [e.g., Mod(3:4)=1, Mod(3:11)=2, and Mod(3:9)=0]. Therefore, you can determine what the GET Function is when it is more than three FS away by rotating around the Functional Circle Mod(3,j) FS instead of the full j units. Using Mod(3:j) simplifies the calculation such that it can be done easily and quickly out on the lawn, usually in less than a minute.

Why Does it Work?

The STANDARD Procedure rotates each ball one FS forward**:** *(R→V, V→P, and P→R)*. Therefore, making j hoops with STANDARD will move the Function of RB (whichever ball is chosen to play this role), *and the other balls*, j FS forward – from its HAVE to its GET. If GET matches WANT, then j hoops made with STANDARD will produce the CO and FO needed at h(i+j). If WANT matches GET+1 or GET+2 then one or two FS <u>more</u> around the Functional Circle than STANDARD can provide is needed to progress from HAVE to

WANT. That is, Striker would like to do one or two more STANDARDs but has run out of hoops. But that is exactly what the EXPEDITE and REPEAT Procedures do – provide an extra one or two FS around the Functional Circle without consuming extra hoops.

HAVE
(r, k, y)-s



III.1 – h(1)

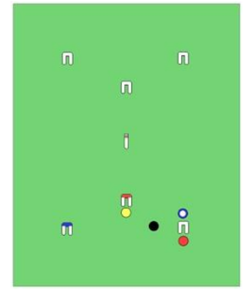
STANDARD
(y, r, k)-s

III.2 – h(2)

STANDARD
(k, y, r)-s

III.3 – h(3)

STANDARD
(r, k, y)-s

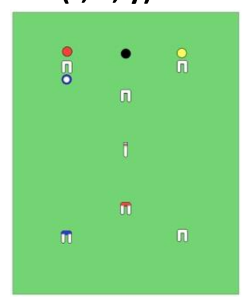


III.4 – h(5)

EXPEDITE
(k, y, r)-s

III.5 – h(2)

REPEAT
(r, k, y)-s



III.6 – h(2)

This is illustrated in the panel of figures presented above. It begins in Figure III.1 where u is for h(1) and r is R(1). Here RB=r. Thus, HAVE=R. Suppose Striker wants HAVE to rotate one FS – from R to V – by the time u is for h(2) – in one hoop. By definition, one application of STANDARD is all that is necessary because STANDARD advances all non-Striker balls one FS each time it is used, and r moves to V as desired and as shown in Figure III.2.

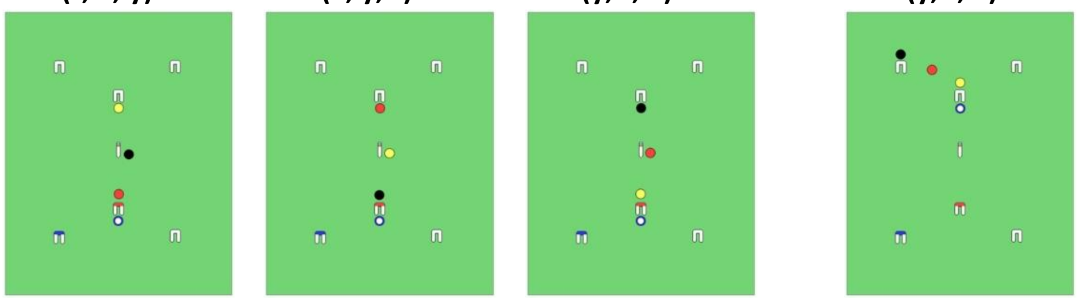
Suppose instead Striker wants HAVE to rotate two FS – from R to P. This can happen using STANDARDs, but it will require two hoops instead of just one – to get to Figure III.3. However, it can be done in a single hoop using one application of EXPEDITE because EXPEDITE advances all non-Striker balls two FS each hoop, as shown in Figure III.5.

Finally, suppose Striker wants HAVE to rotate three FS – from R to R. Once again, this can happen using STANDARDs, but it will require three hoops instead of just one – to get to Figure III.4. However, it can be done in a single hoop using one application of REPEAT because REPEAT advances all non-Striker balls three FS each hoop, as shown in Figure III.6.

Three Examples Involving Different COs and Different RBs: In Figures III.7, III.8, and III.9 u is in position to make h(5) with the non-Striker balls in FO. However, each has a different CO. The question is, in each case, using just one hoop, can Striker progress to h(6) and have y be R(6), r be V(6) and k be P(7)[24], as shown in Figure III.10?

Same Starting Hoop, Different Functional Roles for k and Different RB's

STANDARD	EXPEDITE	REPEAT	RESULT
(r, k, y)-s	(k, y, r)-s	(y, r, k)-s	(y, r, k)-s



III.7 – h(5) | III.8 – h(5) | III.9 – h(5) | III.10 – h(6)

Let's do the Arithmetic: From Figure III.7: RB=r. u is for h(5). r is R(5), k is V(5), and y is P(6). Thus, HAVE=R. WANT=V. j=1. In one FS, HAVE will rotate from R to V→GET=V, GET+1=P, and GET+2=R. WANT=GET. We need to make one hoop with STANDARD.

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[24] The next chapter discusses leaves and in particular the setting of a DSL. It turns out that Striker will have an easy time setting a DSL if he can reach the position shown in Figure III.10, which is why we use it in these examples.

Figure III.7: u makes h(5) and goes to r. u sends r from R(5) to V(6) – [CO is (r, k, y)] – as u goes to k. u sends k from V(5) to P(7) as u goes to y. u sends y from P(6) to R(6) as u goes to position at h(6), Figure III.10, STANDARD.

Let's do the Arithmetic: From Figure III.8: RB=k. u is for h(5). k is R(5), y is V(5), and r is P(6). Thus, HAVE=R. This time WANT=P. In one FS, HAVE will rotate from R to V→GET=V, GET+1=P, and GET+2=R. WANT=GET+1. We need one hoop with EXPEDITE.

Figure III.8: u makes h(5) and goes to k. u sends k from R(5) to P(7) – [CO is (k, y, r)] – as u goes to y. u sends y from V(5) to R(6) as u goes to r. Then, with a short L&H, u sends r from P(6) to V(6) as u goes to position at h(6), Figure III.10, EXPEDITE.

Let's do the Arithmetic: From Figure III.9: RB=y. u is for h(5). y is R(5), r is V(5), and k is P(6). Thus, HAVE=R. This time WANT=R. In one FS, HAVE will rotate from R to V→GET=V, GET+1=P, and GET+2=R. WANT=GET+2. We need to make one hoop with REPEAT.

Figure III.9: u makes h(5) and goes to y. u sends y from R(5) to R(6) – [CO is (y, r, k)] – as u goes to r. u sends r from V(5) to V(6) as u goes to k. Then, with a short L&H, u sends k from P(6) to P(7) as u goes to position at h(6), Figure III.10, REPEAT.

Three Examples with Varying j's, when the RB Remains Partner (k): We want to reach Figure III.10, this time from Figures III.11, III.12, and III.13. We will describe the thought process – the Arithmetic – but dispense with details that implement chosen Procedures.

Keeping k as the RB

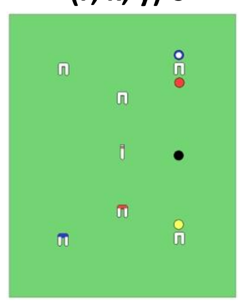
Start-STANDARD
(k, y, r)-s

III.11 – h(1)

Start-REPEAT
(y, r, k)-s

III.12 – h(2)

Start-EXPEDITE
(r, k, y)-s



III.13 – h(3)

Result
(y, r, k)-s

III.10 – h(6)

Let's do the Arithmetic: From Figure III.11: RB=k. u is for h(1). k is R(1), y is V(1) and r is P(2). Thus, HAVE=R. We are looking j=5 hoops ahead, at h(6) where WANT=P. Mod(3,j)=Mod(3,5)=2, thus going from HAVE to GET in five FS is the same as determining what is needed in two FS. In two FS, HAVE will rotate from R to P→GET=P, GET+1=R, and GET+2=V. WANT=GET. Therefore, over the next five hoops Striker can exclusively use STANDARDs.

Let's do the Arithmetic: From Figure III.12: RB=k. u is for h(2). y is R(2), r is V(2), and k is P(3). Thus, HAVE=P. We are looking j=4 hoops ahead at h(6) where WANT=P. Mod(3,j)=Mod(3,4)=1. In one FS, HAVE will rotate from P to R→GET=R, GET+1=V and GET+2=P. WANT=GET+2, therefore over the next 4 hoops Striker should make 1 hoop with REPEAT and 3 with STANDARDs.

Let's do the Arithmetic: From Figure III.13: RB=k. u is for h(3), r is R(3), k is V(3), and y is P(4). Thus, HAVE=V. We are looking j=3 hoops ahead at h(6) where WANT=P. Mod(3,j)=Mod(3,3)=0 implying that determining how HAVE will rotate over three FS is the same as determining what happens over zero FS. In zero FS, HAVE will still be V→GET=V, GET+1=P and GET+2=R. WANT=GET+1, and, therefore, over the next three hoops Striker should make one hoop with EXPEDITE and two with STANDARDs.

Timing Corrective Action and Gaining Flexibility using Equivalents

Timing Corrective Action: In the first three examples presented above, u was for h(5) and had to act immediately because the goal was to reach the desired CO and FO in just one hoop, by h(6). Things are different in the final three examples. Here u knows *what* he must do but has freedom to choose *when* to do it. That is, if j>= 2, then Striker has two or more hoops available to reach his Functional goal. STANDARD, EXPEDITE, and REPEAT are commutative meaning they can be executed in any order achieving the same final result. This means that a difficult EXPEDITE or REPEAT can be delayed to a more convenient hoop by starting with one or more STANDARDs. In addition to timing corrective actions, the precise actions taken do not have to follow the precise prescription of the Arithmetic. It uses only STANDARDs, EXPEDITEs, and REPEATs – equivalents are possible and often improve the situation.

From Figure III.12, u is for h(2) and needs to do a REPEAT before making h(6). The easiest REPEAT would be between h(3) and h(4)[25] (approaching h(4) with a short L&H) and therefore Striker should execute one STANDARD, one REPEAT and then two STANDARDs.

[25] Between h(5) and h(6) would be similarly short, but it is wise to leave some room (hoops) for error.

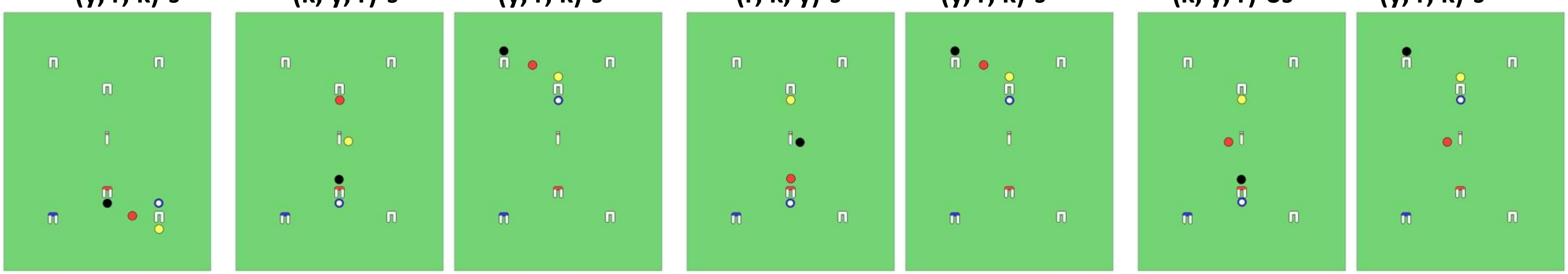
From Figure III.13, u is for h(3) and needs to do an EXPEDITE before making h(6). It is probably easiest to do it immediately, before h(4), and follow with 2 applications of STANDARD.

Gaining Flexibility using Equivalences: The most useful Equivalences are:

1. [EXPEDITE + EXPEDITE] = [REPEAT + STANDARD]
2. [TAC + 3-FIX] = [EXPEDITE + STANDARD]
3. [LIMITED + 3-FIX] = [REPEAT + STANDARD]
4. [REPEAT + REPEAT] = [EXPEDITE + STANDARD]

Note also that 3-BALL creates the same CO as EXPEDITE but ignores the ball at P(i+1), which may or may not be helpful. Finally, 3-L&H and 2-BALL and can be used in lieu of REPEAT in some circumstances when ignoring the unused ball(s) proves useful.
We start in Figure III.14 with the desire to reach Figure III.16.

Start	[STANDARD + EXPEDITE]		[EXPEDITE + STANDARD]		[TAC + 3-FIX]	
(y, r, k)-s	**(k, y, r)-s**	**(y, r, k)-s**	**(r, k, y)-s**	**(y, r, k)-s**	**(k, y, r)-os**	**(y, r, k)-s**



III.14 – h(4) **III.15 – h(5)** **III.16 – h(6)** **III.17 – h(5)** **III.18 – h(6)** **III.19 – h(5)** **III.20 – h(6)**

Let's do the Arithmetic: From Figure III.14: u is for h(4), y is R(4), r is V(4), and k is P(5). RB=k. Thus, HAVE=P. We are looking j=2 hoops ahead to h(6) where we want k to be P(7), thus, WANT=P. In (j=2) FS, HAVE will rotate from P to V→GET=V, GET+1=P and GET+2=R. WANT=GET+1, and, therefore, over the next two hoops, Striker should make one hoop with EXPEDITE and one with STANDARD, in either order, or the equivalent.

Figures III.15 and III.16 show the result of [STANDARD + EXPEDITE] while Figures III.17 and III.18 show the result of [EXPEDITE + STANDARD]. No surprise, the results are the same. Furthermore, if, for some reason, we decided to do the arithmetic again one hoop later, after Figures III.15 or III.17 we would be instructed to do what was done between Figures III.15 and III.16 – an EXPEDITE, or between Figures III.17 and III.18 – a STANDARD, as shown in the two calculations below:

Let's do the Arithmetic: From Figure III.15: u is for h(5), k is R(5), y is V(5), and r is P(6). RB=k. Thus, HAVE=R. We are looking j=1 hoop ahead at h(6) where we want k to be P(7), thus, WANT=P. In (j=1) FS, HAVE will rotate from R to V→GET=V, GET+1=P and GET+2=R. WANT=GET+1, and, therefore, to get to the next hoop, Striker should execute an EXPEDITE.

Let's do the Arithmetic: From Figure III.17: u is for h(5), r is R(5), k is V(5), and y is P(6). RB=k. Thus, HAVE=V. We are looking j=1 hoop ahead at h(6) where we want k to be P(7), thus, WANT=P. In one (j=1) FS, HAVE will rotate from V to P→GET=P, GET+1=R and GET+2=V. WANT=GET, and, therefore, to get to the next hoop, Striker should execute a STANDARD.

Do Not Attempt the Arithmetic When CO and FO are Out of Sync!

Striker chooses to use the [TAC + 3-FIX], as shown in Figures III.19 and III.20. This is a legitimate line of play. Now suppose Striker checks the Arithmetic just after performing the TAC Procedure, when CO and FO are out of sync. He will get three different answers, and each will be wrong! **DON'T DO IT!** Doing the Arithmetic of CO requires that CO/FO be in sync.

Let's do the Arithmetic: From Figure III.19: u is for h(5), k is R(5), r is V(5), and y is P(6). RB=k. Thus, HAVE=R. We are looking j=1 hoops ahead to h(6) where we want k to be P(7), thus, WANT=P. In (j=1) FS, HAVE will rotate from R to V→GET=V, GET+1=P and GET+2=R. WANT=GET+1, and therefore Striker should use EXPEDITE to progress from h(5) to h(6). **WRONG**.

Let's do the Arithmetic: From Figure III.19: u is for h(5), k is R(5), r is V(5), and y is P(6). RB=r. Thus, HAVE=V. We are looking j=1 hoops ahead to h(6) where we want r to be V(6), thus, WANT=V. In (j=1) F HAVE will rotate from V to P→GET=P, GET+1=R and GET+2=V. WANT=GET+2, and therefore Striker should use REPEAT to progress from h(5) to h(6). **WRONG**.

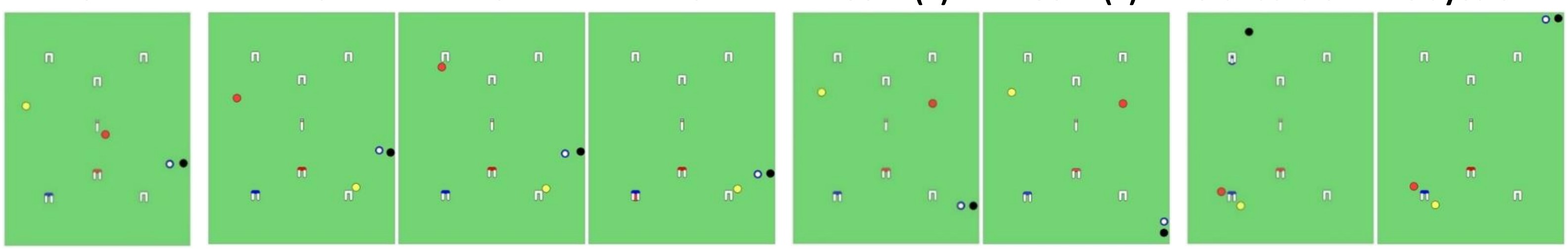
Let's do the Arithmetic: From Figure III.19: u is for h(5), k is R(5), r is V(5), and y is P(6). RB=y. Thus, HAVE=P. We are looking j=1 hoops ahead to h(6) where we want y to be R(6), thus, WANT=R. In (j=1) FS, HAVE will rotate from P to R→GET=R, GET+1=V and GET+2=P. WANT=GET, and therefore Striker should use STANDARD to progress from h(5) to h(6). **WRONG**.

IV.. SETTING LEAVES

We have deliberately chosen to present this chapter on Leaves before presenting the chapter on Peeling, which initially may seem somewhat cart-before-the-horse. However, we feel presenting in this way flows better, as the setting of leaves is usually done to facilitate Peeling in the next turn. Readers are free to reverse the order.

We compares how leaves are set and used in T-AC and COAC. Four types are considered: (i) Diagonal Spread Leaves (DSL), (ii) Hoop Leaves: The New Standard (NSL), Maugham Standard (MSL), and Bryant Standard (BSL), (iii) Old Standard: As a fall back with Striker starting at h(1) and on its own with Striker starting at h(2), and (iv) Sextuple Leaves: Standard and Delayed – all as pictured below. In each case the question will be: what Procedure(s) should Striker use to go from where he is in a break to setting the leave?

DSL **NSL** **MSL** **BSL** **OSL h(1)** **OSL h(2)** **Standard SxP** **Delayed SxP**



Diagonal Spread Leave (DSL)

The next two panels show how the Procedures can be used to complete an *almost* traditional DSL. Here u's break commences at h(6) with partner (k) in three different roles: #1: Pioneer (Figure IV.1), #2: Pivot (Figure IV.6) and #3: Reception (Figure IV.8). A different starting point, earlier or later in u's break, could have been chosen, but h(6) is reasonable as it can take this long to gain sufficient control of the balls to begin thinking of setting a leave. Partner (k) will be the Reference-Ball, RB, in each case.

Let's do the Arithmetic: Example #1: k=P(7): In Figure IV.1, u is Striker and is for h(6), y is R(6), r is V(6) and k is P(7). RB=k. Thus, HAVE=P. It is necessary to picture where Striker wants k to be in the future. It should be a position that will lead easily to a DSL. One possibility is shown in Figure IV.4, three hoops in the future. Here u is in position to make h(9) and k will be the final ball used to get off the lawn. Thus, WANT=P, j=3, Mod(3:3)=0. Therefore, in zero FS, HAVE will rotate from P to P→GET=P, GET+1=R and GET+2=V. WANT=GET so Striker needs to make 3 hoops with STANDARD.

Figure IV.1: u makes h(6) and goes to y. u sends y from R(6) to V(7) – [CO is (y, r, k)] – as u goes to r. u sends r from V(6) to P(8) as u goes to k. u moves k from P(7) to R(7), as u goes to position at h(7), Figure IV.2, STANDARD.

Figure IV.2: u makes h(7) and goes to k. u sends k from R(7) to V(8) near the peg – [CO is (k, y, r)] – as u goes to y. u sends y from V(7) to P(9) as u goes to r. u moves r from P(8) to R(8), as u goes to position at h(8), Figure IV.3, STANDARD.

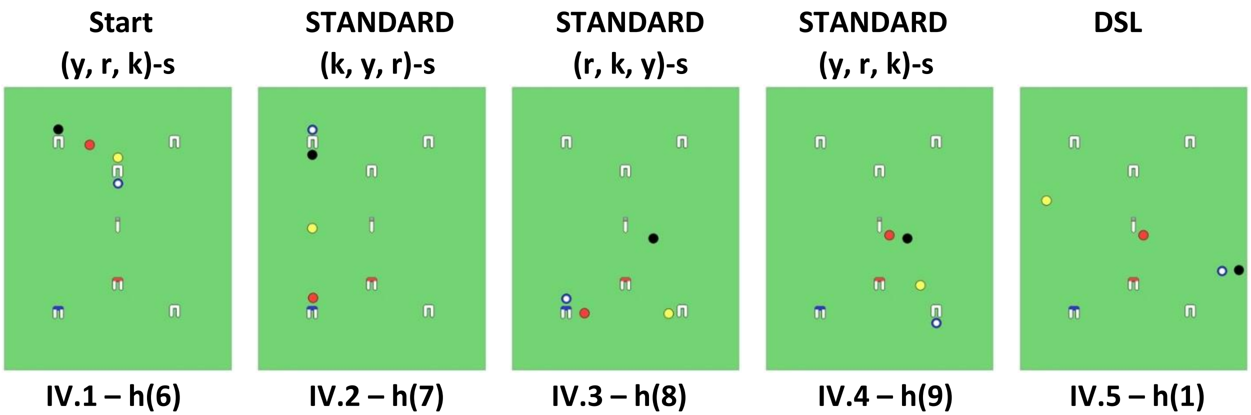


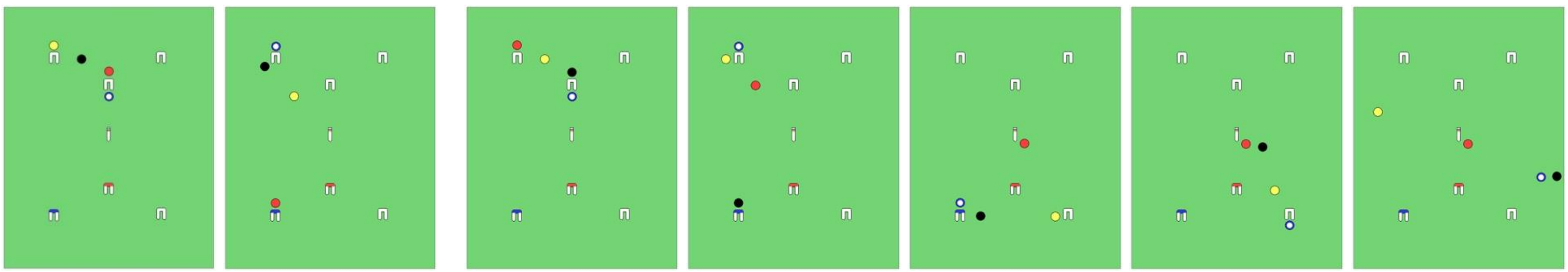
Figure IV.3: u makes h(8) and goes to r. u moves r, the BEFORE-Ball, to the peg [from R(8) to V(9)] – [CO is (r, k, y)] – as u goes to k. u sends k from V(8) to an Escape-Ball position at the peg (escape to the east boundary) as u goes to y. u moves y from P(9) to R(9), as u goes to position at h(9), Figure IV.4, STANDARD.

Figure IV.4: u makes h(9) and goes to y. u sends y from R(9) to the southwest of h(2) – [CO is (y, r, k)] – as u goes to r. u adjusts r at the peg as u goes to k. u escapes with k to the east boundary, and then u gives k a rush to h(1), resulting in the DSL, Figure IV.5. *The result is what you would expect, except that k has a rush on u that can be cut to h(1) instead of to the peg, the need for which is explained later.*

Let's do the Arithmetic: Example #2: k=V(6): In Figure IV.6, u is Striker and is for h(6), r is R(6), k is V(6) and y is P(7). RB=k. Thus, HAVE=V. Striker still wants k to be the 3rd ball used after u makes h(9), thus, WANT=P, j=3 and Mod(3:3)=0. In zero FS, HAVE will rotate from V to V→GET=V, GET+1=P and GET+2=R. WANT=GET+1. Over the next three hoops, Striker needs to make one hoop with EXPEDITE and two with STANDARDs, or equivalents.

Figure IV.6: u makes h(6) and goes to r. u sends r from R(6) to P(8) – [CO is (r, k, y)] – as u goes to k. u sends k from V(6) to R(7) as u goes to y. Then, with a short L&H, u moves y from P(7) to V(7) as u goes to position at h(7), Figure IV.7, EXPEDITE. Figure IV.7 is equivalent to Figure IV.2 from above, and therefore the DSL will follow with three applications of STANDARD.

Start (r, k, y)-s	EXPEDITE (k, y, r)-s	Start (k, y, r)-s	EXPEDITE (y, r, k)-s	TAC (k, y, r)-os	3-FIX (y, r, k)-s	DSL



IV.6 – h(6)	IV.7 – h(7)	IV.8 – h(6)	IV.9 – h(7)	IV.10 – h(8)	IV.11 – h(9)	IV.12

Let's do the Arithmetic: Example #3: k=R(6): In Figure IV.8, u is Striker and is for h(6), k is R(6), y is V(6) and r is P(7). RB=k. Thus, HAVE=R and WANT still equals P. Mod(3:3)=0. In zero FS, HAVE will rotate from R to R→GET=R, GET+1=V and GET+2=P. WANT=GET+2. Over the next three hoops, Striker needs to make one hoop with REPEAT and two with STANDARD or the equivalent.

Between h(6) to h(9) there is not an easy hoop for a REPEAT. The best time for doing a REPEAT has passed which would have been after h(5). Instead, Striker could execute two EXPEDITEs and one STANDARD. But the 2nd EXPEDITE is problematic because it may not get Partner close enough to the peg with the L&H. Better to use one EXPEDITE together with one TAC [planning to send r as the Pivot-Ball to the peg as it is done] and one 3-FIX wherein r will not be reset.

Figure IV.8: u makes h(6) and goes to k. u sends k from R(6) to P(8) – [CO is (k, y, r)] – as u goes to y. u sends y from V(6) to R(7) as u goes to r. u sends r from P(7) to V(7) with a short L&H as u goes to position at h(7), Figure IV.9, EXPEDITE.

Figure IV.9: u makes h(7) and goes to y. u sends y from R(7) to P(9) – [CO is (y, r, k)] – as u goes to r. Then u sends r from V(7) to V(8), near the peg, as u goes to k. u moves k from P(8) to R(8) as u goes to position at h(8), Figure IV.10, TAC.

Figure IV.10: u makes h(8) and goes to k. u sends k from R(8) to Escape-Ball position at the peg – [CO is (k, y, r)] – as u goes to y. u sends y from P(9) to R(9) as u goes to position at h(9), Figure IV.11, 3-FIX. The DSL follows as shown in Figure IV.12.

Another way to proceed from Figure IV.8 is to use TAC and then two applications of the 3-4-BALL Procedure. This has the benefit of avoiding L&Hs at the cost of running an unusual 3-ball break for a couple of hoops.

Start (k, y, r)-s | **TAC* (r, k, y)-os** | **3-4-BALL (k, y, r)-os** | **3-4-BALL (y, r, k)-s** | **DSL**

IV.8 – h(6) | **IV.13 – h(7)** | **IV.14 – h(8)** | **IV.15 – h(9)** | **IV.16**

Figure IV.8: u makes h(6) and goes to k. u sends k from R(6) to P(8) – [CO is (k, y, r)] – as u goes to y. Then u sends y from V(6) to P(9) – three hoops forward – as u goes to r. r is sent from P(7) to R(7) as u goes to position at h(7), Figure IV.13, TAC. *This a special application of the TAC Procedure (identified by an *), where the Pivot Ball is sent to Pioneer position three hoops ahead*.

Figure IV.13: u makes h(7) and goes to r. u sends r from R(7) to V(8) at the peg – [CO is (r, k, y)] – as u goes to k. Then u sends k from P(8) to R(8) as u goes to position at h(8), Figure IV.14, 3-4-BALL.

Figure IV.14: u makes h(8) and goes to k. u sends k from R(8) to an Escape-Ball position at the peg – [CO is (k, y, r)] – as u goes to y. u sends y from P(9) to R(9) as u goes to position at h(9), Figure IV.15, 3-4-BALL.

Figure IV.15: u makes h(9) and goes to y. u sends y from R(9) to south-west of h(2) – [CO is (y, r, k)] – as u goes to r. u adjusts r at the peg as u goes to k. u escapes with k to the east boundary, and then u gives k a rush to h(1), resulting in the DSL, Figure IV.16.

In a DSL, Which Ball Should Be at the Peg – the BEFORE-Ball or the AFTER-Ball? In T-AC it is desirable, but not required, that Striker position the two Oppo Balls for the final time after making h(9), and then rush Partner (k) to the East boundary. This sequence of events is also desirable in COAC, but there is a complication – CO. With this in mind, after making h(9), with u as Striker, it is simplest to go first to the AFTER-Partner-Ball (y) [i.e., have y be R(9)] – [CO is (y, r, k)]. u sends y Southwest of h(2) going to the BEFORE-Ball (r). u adjusts r at the peg, as u goes to Partner (k). Finally, u rushes k to the East boundary. *This explains why r, the BEFORE-Partner-Ball (i.e., before Partner k in CO) is at the peg*[26].

Why Have a Rush to h(1) Instead of to the Peg? Suppose r is at the peg. If k has the traditional rush on u – pointing north-west towards r/y – then r/y have a play that can make things difficult for k during his peeling turn: r/y can pick up r and shoot from B-Baulk at u/k (missing to c4) or finesse into c3. With either action, k will have a very difficult start. u/k can defend against this by having k's rush on u oriented toward h(1). That said, having the rush pointing to the peg creates 4-Turn Finish possibilities that are discussed in Chapter VIII.

Final Thoughts on Setting a DSL**:** Here are two things that players often do as part of setting a DSL in the context of a T-AC game that do not work well in COAC:

1. Pre-position Partner at h(8): In COAC, it is better to have the BEFORE-Ball at h(8) as R(8) and Partner at the Peg as V(8). Then they are in CO as Striker proceeds to h(9).

2. Adjust the Peg-ball Three Times: In COAC, the Oppo Ball at the peg is adjusted only twice. A third adjustment is difficult to manufacture, and definitely not worth the effort.

[26] The AFTER-Ball can be placed at the peg instead. But it is a lot of work and no gain. In fact, in addition, it is easier to run a peeling break with the BEFORE-Ball starting at the peg.

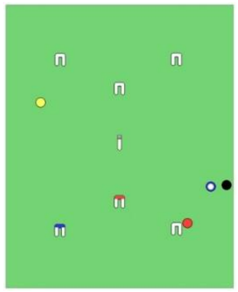
Just as in T-AC, the DSL in COAC provides great versatility due to its relative ease of setting, its versatility for a multitude of clip positions, its relative strength even when not perfectly set, and its ability to be backed out to an OSL when things go awry.

Hoop Leaves: NSL, MSL, and BSL

NSL
BEFORE-y at h(4)

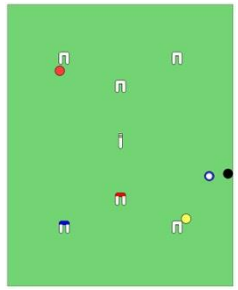
IV.17

NSL
AFTER-r at h(4)



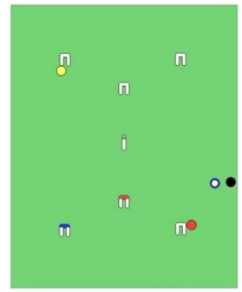
IV.18

MSL
BEFORE-y at h(4)



IV.19

MSL
AFTER-r at h(4)



IV.20

BSL
BEFORE-y at h(4)

IV.21

BSL
AFTER-r at h(4)

IV.22

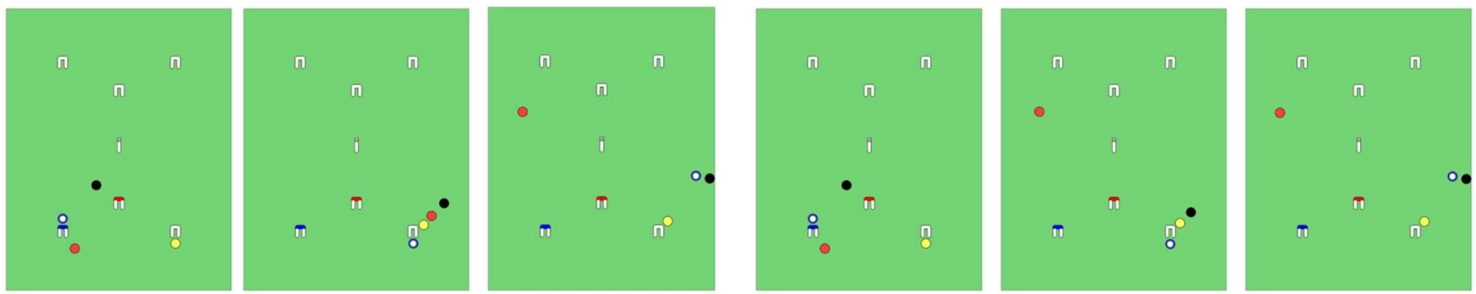
After the DSL, two of the most prominent leaves from T-AC are the New Standard Leave (NSL) and the Maugham Standard Leave (MSL). They are popular because both can lead to a Standard-Triple without a Hogan-Roll, as can be required from a DSL. In this section we will establish that the NSL and MSL can be set in COAC. We will also look at another hoop leave, less commonly-seen in T-AC, which we refer to here as the Bryant Standard Leave (BSL). It is a h(1)/h(4) hoop leave. We compare it particularly to the MSL finding it easier to set in COAC and perhaps as effective. All three leaves allow for a Standard-Triple if set correctly and Oppo misses. As in T-AC, all three leaves can be accomplished with either Oppo-Ball hampered at h(4) but rushable to h(1), Figures IV.17 – IV.22, but now the color of that ball has important implications.

Setting a New Standard Leave (NSL)

The goal is to reach Figure IV.17 repeated below, with one Oppo (r) southwest of h(2) and the other Oppo (y) hampered at h(4).

Figure IV.23: r is R(8), k is V(8) and y is P(9)[27]. *Starting from here, one simple way to set the NSL is to group all of the balls at h(9)*. u makes h(8) and goes to r. u sends r from R(8) to R(9) – [CO is (y, r, k)] – as u goes to k. u sends k from V(8) to V(9) as u goes to y. Then, with a short L&H, u sends y from P(8) to P(9), Figure IV.24.

Figure IV.24: Striker scores h(9) and rushes r to c4 and croquets it well south of h(2) while going to k. u rushes k to max distance on the east boundary and has the option to take-off back to y if it needs to be adjusted. *u finishes the leave by setting a rush for k toward r*[28], competing the NSL, Figure IV.17.



With a little foresight, and a different Procedure, after h(8), u can be more precise by sending r to its final position south of h(2).

Figure IV.23 (repeated): u makes h(8), goes to r. u sends r from R(8) to be the 3rd ball used after h(8) – [CO is (r, k, y)] – specifically sending r southwest of h(2) while going to k. u rushes and croquets k from V(8) to R(9), sending it northeast of h(9) as while going to y. u sends y, from P(9) to R(9), near its final hampered spot near the hoop while getting position at h(9), Figure IV.25, EXPEDITE. *If*

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[27] In Figure IV.23, Striker already has the ball he wants to leave at h(4) [y, in this instance] as its P(9).This is not necessary but would require Striker to use other procedures to progress from h(8) to h(9).

[28] A “weakness” of the NSL relative to the DSL is that from Figure IV.17, r can finesse, say into c3. If k tries to proceed it can be difficult to get started. But the better option for u/k (k or u!) is to reset, offering r/y the shot he did not take, now from a worse position. The DSL avoids this because y is at h(2).

everything is nice and tidy, u can score h(9) and then only hit k, rushing it away to the east boundary wired from y. Of course, u has the option to adjust y after going to k (and additionally r) before setting the rush for k to end the turn.

<u>Which Ball at h(4)?</u>

So far, we have assumed that Striker wants to leave y at h(4). Relative *to Striker (u)*, y is the AFTER-Partner-Ball. But an NSL can also be set with r at h(4). Here r is the BEFORE-Partner-Ball. Which is best? It may in fact be easier to set an NSL by adjusting the BEFORE-Ball at h(4) (not shown). *However, we have been leaving the AFTER-Ball at h(4), for a reason – it maintains the ability to run a Standard-Triple in CO in a way familiar from T-AC. Here's how:*

<u>Figure IV.17</u>, Suppose the ball near h(2), r, lifts, shoots, and misses into c4, <u>Figure IV.26</u>.

<u>Figure IV.26</u>: k rushes u in lawn – [CO (u, r, y)] – sending u from R(0) to V(1). k takes-off from u going to r. k sends r from V(0) to P(2) going to y. k can rush y to P(1) and croquet it to R(1), as k goes to position at h(1), <u>Figure IV.27</u>, STANDARD. *Two more applications of STANDARD (not shown) gives k the traditional h(10) Peel attempt A-h(3), same as in T-AC!*

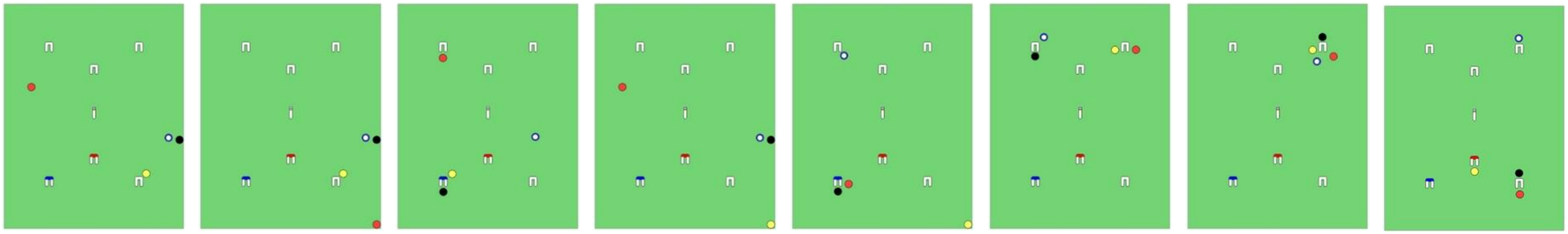
As an alternative, suppose Oppo decides to lift y from h(4) in <u>Figure IV.17</u>, and shoots and misses into c4, <u>Figure IV.28</u>. k can still build a Standard-Triple with a Hogan-Roll:

<u>Figure IV.28</u>: k rushes u west of r and then croquets u from R(0) to P(2) – [CO (u, r, y)] – while getting a rush on r. k rushes r from V(0) to P(1) and croquets it to R(1), as k goes to position at h(1), <u>Figure IV.29</u>, 3-BALL.

<u>Figure IV.29</u>: k makes h(1) and goes to r. k sends r from R(1) to V(2), near h(3) – [CO (r, y, u)] – as k goes to y in c4. *k plays a Hogan-Roll* sending y from V(1) to P(3) while going to u at P(2). k rushes and croquets u to R(2) while taking position at h(2), <u>Figure IV.30</u>, STANDARD.

<u>Figure IV.30</u>: k makes h(2) and goes to u. k sends u from R(2) to behind h(3), as V(3,10) – [CO (u, r, y)] – while going to r. k sends r from V(2) to behind h(3), as E(4,10), and goes to y at P(3). k croquets y to R(3) as k goes to position at h(3), <u>Figure IV.31</u>, STANDARD.

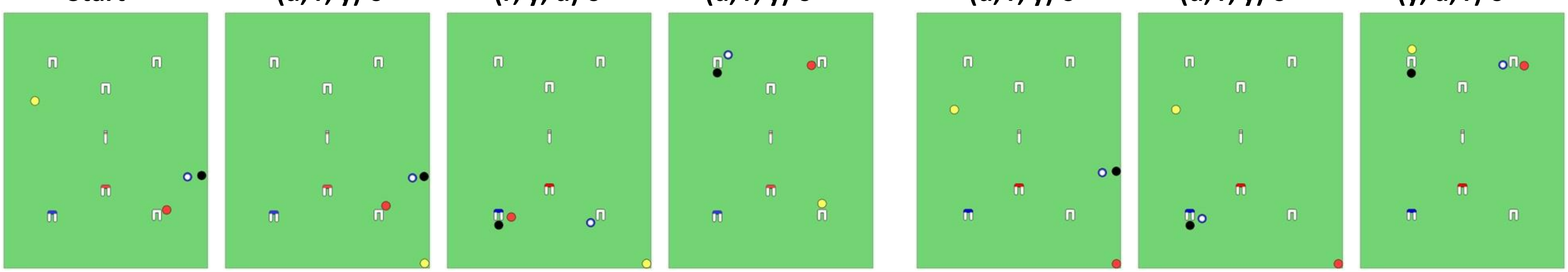
Superior NSL Before y at h(4) Start	r Misses (u, r, y)-s	Same as T-AC STANDARD	y misses (u, r, y)-s	3-BALL (r, y, u)-s	Hogan-Roll STANDARD (u, r, y)-s	STANDARD (y, u, r)-s	h(10) Peel W-h(4) TAC (r, y, u)-os



IV.17	IV.26	IV.27 – h(1)	IV.28	IV.29 – h(1)	IV.30 – h(2)	IV.31 – h(3)	IV.32 – h(4)

Figure IV.31: k makes h(3) and goes to y. k rushes y as R(3) north and croquets it to P(5) – [CO (u, r, y)] – as goes to u. k rushes u to Peel position and attempts the h(10) Peel W-h(4) with the follow on Croquet shot. Then k escapes with r, rushing r to h(4) and croqueting it to R(4) while taking position, Figure IV.32, using TAC.

Inferior NSL AFTER r at h(4) Start	y Misses (u, r, y)-s	u as M(2,4) 3-BALL (r, y, u)-s	STANDARD (u, r, y)-s	r Misses (u, r, y)-s	2-BALL (u, r, y)-s	STANDARD (y, u, r)-s



IV.18	IV.33	IV.34 – h(1)	IV.35 – h(2)	IV.36	IV.37 – h(1)	IV.38 – h(2)

Now consider the situation from Figure IV.18. Here r is at h(4). It turns out that a Standard-Triple is still possible, if y lifts, shoots, and misses into c4, Figure IV.33. Here's how:

Figure IV.33: k roquets u – [CO (u, r, y)] – but cannot immediately go to y. Instead, k rushes u from R(0) toward r and leaves u near h(4) as M(2,4) as k goes to r. k rushes r from V(0) to P(1) and croquets it to R(1) while getting position at h(1), Figure IV.34, 3-BALL.

Figure IV.34: k makes h(1) and goes to r. k sends r from R(1) to P(3) while going to y in c4. k roquets and rolls y from V(1) to V(2) [specifically to P(4)] while getting a rush on u. k rushes u from V(1) to P(2) and croquets it northeast of the hoop to R(2) while k gets position at h(2), Figure IV.35, TAC*. *If k gets a good rush on u to h(3), he is likely to earn an attempt at the Standard-Triple-Peel*[29]*. This set of maneuvers can work but it is very difficult to accomplish and not recommended!*

If Oppo lifts r, shoots and misses to c4, Figure IV.36, k can still get a Standard-Triple-Peel attempt with a wide Hogan-Roll:

Figure IV.36: k rushes u from R(0) to P(1) – [CO (u, r, y)] – and then croquets it to R(1) as k goes to position at h(1), Figure IV.37, 2-BALL.

Figure IV.37: k makes h(1) and goes to u. k sends u to V(2), *but at h(3)* – [CO (u, r, y)] – while going to r in c4. With a wide Hogan=Roll, k sends r from V(1) to P(3) while getting a rush on y. k rushes y to h(2) and sends it to R(2) as k goes to position at h(2), Figure IV.38, using STANDARD. *k can send y to h(4) – with TAC – going to u at h(3) and prepare for the first Peel in a Standard-Triple.*

Setting a Maugham Standard Leave (MSL)

An MSL in T-AC is set by: (i) pinning an Oppo-Ball at h(2) just after Striker makes h(7), (ii) hampering the other Oppo-Ball at h(4) after Striker makes h(9), and then (iii) giving Partner a rush to h(1). Once again it can be accomplished with either Oppo-Ball at either hoop. But each result requires that the balls be in specific positions at h(7). Once again, having r at h(2) is advantageous for pursuing a Standard-Triple and so we will show how to proceed with that goal in mind and leave the reader to work out the other possibility.

We start in Figure IV.39. Here Striker (u) is in position to make the h(7), BEFORE (r) is R(7), Partner (k) is V(7), and AFTER(y) is P(8).
Figure IV.40: u makes h(7) and goes to r. u sends r from R(7) to V(8), pinning r at h(2) – [CO is (r, k, y)] – as u goes to k. u sends k from V(7) to R(8) as u goes to y. u sends y from P(8) to P(9) with a long L&H, Figure IV.40, LIMITED.

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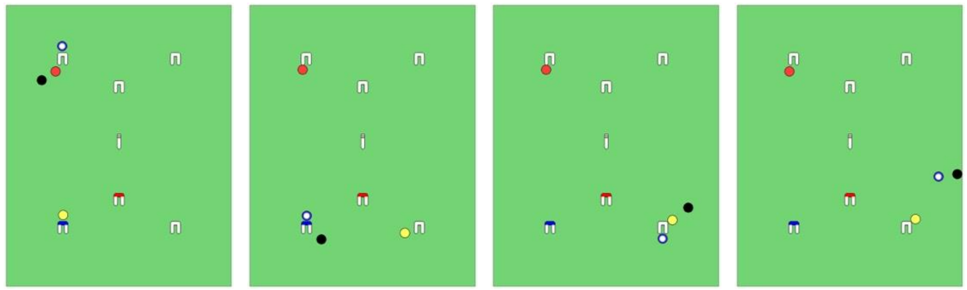
[29] If y actually finishes *in* c4, Figure IV.28, then a valid course of action is for k to rush u to r, get a dolly rush on r into c4 and take a c4 cannon. This will give an immediate Standard TP. Jeff Soo was the first to point this out.

Figure IV.40: u makes h(8) and goes to k. u sends k from R(8) to R(9) – [CO is (k, y, r)] – as u goes to k. u sends k from P(9) to an Escape-Ball position to the east with a short L&H, as u goes to position at h(9), Figure IV.41, 3-L&H.

Start (r, k, y)-s	LIMITED (k, y, r)-os	3-L&H (k, y, r)-s	MSL



IV.39 – h(7)	IV.40 – h(8)	IV.41 – h(9)	IV.19

Figure IV.41: u makes h(9) and goes to k. u sends k to the east boundary – [CO is (k, y, r)] – as u goes to y. u hampers y at h(4) and then lags toward k giving k a rush on u to h(1), Figure IV.19, 3-BALL, completing the MSL.

This required some fancy/difficult footwork: We used a here-to-fore unused Procedure, LIMITED, in a 1st L&H; we followed this with a 3-L&H Procedure and a 2nd L&H, and we finished setting the MSL with a careful lag back to Partner[30].

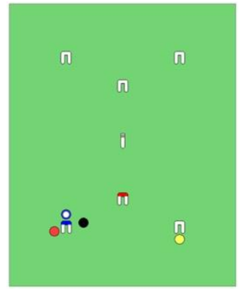
[30] If u manages to place y in the hampered position north-east of h(9) in the croquet shot while approaching h(9), then u need not revisit y again after the hoop, u can instead simply make h(9) and go to k. u will rush partner (k) to the east boundary and set a nice rush.

Setting a Bryant Standard Leave (BSL)

Start
(k, y, r)-s

IV.42 – h(7)

STANDARD
(r, k, y)-s

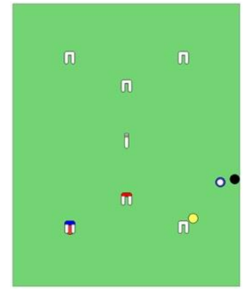


IV.43 – h(8)

EXPEDITE
(k, y, r)- s

IV.44 – h(9)

BSL



IV.45

Setting this leave requires pinning one Oppo-Ball at h(1) and hampering the other at h(4). While this may seem difficult, so long as the pinning works well, there need not be any overly straining strokes involved. Under COAC rules, compared to the MSL, which was just shown to require difficult L&Hs, the BSL is much easier to set with no L&Hs.

We start with Striker (u) is in position to make the h(7), Partner (k) is R(7), AFTER (y) is V(7), and BEFORE (r) is P(8). *Setting it with the Oppo-Balls reversed is left as an exercise for the reader.*

Figure IV.42: u makes h(7) and goes to k. u sends k from R(7) to V(8), *near to h(8)* – [CO is (k, y, r)] – as k goes to y. k sends y from V(7) to P(9) as k goes to r. k sends r to R(8) as k goes to position at h(8), STANDARD, Figure IV.43.

Figure IV.43: u makes h(8) and goes to r. k roquets and pins r on the northern side of h(1), r is converted from R(8) to the 3rd ball that could be used after h(9) – [CO is (r, k, y)] – as u goes to k. u rushes and croquets k from V(8) to R(9), northeast of h(4) as u goes to y. k sends y near the right stanchion of h(9), from P(9) to V(9) as k goes to position at h(9) EXPEDITE, Figure IV.44.

Figure IV.44: u makes h(9) and goes to k and rushes it to the east boundary and sets a rush to the west – [CO is (k, y, r)] – STANDARD, Figure IV.45. *Striker has the option to adjust y again before lagging back to k and can even revisit r after y if necessary.*

Pinning the AFTER-ball (y) at h(1) makes the leave slightly easier to achieve [Striker will have the fine control to leave a dolly rush for partner after hampering r at h(4)]. If Oppo leaves y at h(1), k will have an easy start and he can move both u and r before making h(1) giving him a good chance at the Standard-Triple attempt. Since Oppo is likely to play the h(1) ball and miss to c4, k should plan for a start from Figure IV.33 and a long rush to h(2) if he wishes to attempt a Standard-Triple-Peel.

Pinning the BEFORE-ball (r) at h(1) provides potentially greater benefits to k's next turn following any miss by r/y. If Oppo leaves r at h(1), lifts y from h(4) and misses into c4, then k will have an easy h(1). After sending u to P(2) and scoring h(1) off of r, k will visit y in c4 and have the option of a long take to u at P(2) to continue the break and a possible Delayed-Triple, or instead play a Hogan-Roll to have a chance at the Standard-Triple. If Oppo lifts r, the ball from h(1), and misses to c4, the court will resemble Figure IV.26. k will rush u into court and go to r in c4, send r to P(2) while getting a rush on y to h(1) and have a Standard-Triple attempt.

Old Standard Leaves (OSL)

There are two reasons to consider the OSL: (i) As a fallback, and (ii) On its own merits.

OSL – fallback
k for h(1)

IV.46

Start
(y, r, k)-s

IV.47 – h(7)

STANDARD
(k, y, r)-s

IV.48 – h(8)

EXPEDITE
(y, r, k)-s

IV.49 – h(9)

OSL – merits
k for h(2)

IV.50

As a Fallback

In COAC, as in T-AC, the Croquet Gods can conspire against efforts to set a DSL, MSL or NSL. The OSL is the best fallback. As with the other leaves, u makes h(9) with y (AFTER), and then sends the balls to their final locations in the order y (AFTER), r (BEFORE) and k (Partner). It is still necessary to orient the rush to h(1) and not to one of the Oppo Balls, and it is better to have y, the BEFORE-Ball, as the quasi-pioneer at h(2)[31]. The result is shown in Figure IV.46.

On its Own Merits – when Partner has been Peeled to h(2)

Consider Figures IV.47 to IV.50. They show how the OSL can be set when Striker (u) also wants to peel Partner (k) from h(1) to h(2) as the leave is set. The reason to consider this approach is that, from Figure IV.50, the to-be Striker-ball (k) is for h(2) and is in a good position to start a Standard-Triple.

Figure IV.47: u is in position to make h(7). y is R(7), r is V(7), and k is P(8,1) and is for h(1). u makes h(7) and goes to y. u sends y from R(7) to V(8) – [CO is (y, r, k)] – as u goes to r. u sends r from V(7) to P(9) as u goes to k. u sends k from P(8,1) to R(8,1) as u goes to position at h(8), Figure IV.48, STANDARD. *Before attempting to complicate the setting of the leave with a Peel, let us see if we can arrange to roquet k last so as to finish the leave by rushing partner away to a boundary or corner.*

Let's do the arithmetic: In Figure IV.47 u is for h(7). k is P(8). RB=k, therefore, HAVE=P. In 2 hoops (j=2) Striker wants k to be the 3rd ball used to get off the lawn, so WANT=P. In two FS, HAVE will rotate from P to V→GET=V, GET+1=P and GET+2=R. WANT=GET+1, so over the next two hoops an EXPEDITE and a STANDARD is needed. Doing the EXPEDITE first creates the appropriate CO for the escape to the east.

Figure IV.48: u makes h(8) and goes to k. u peels k at h(1) A-h(8), sending k from R(8,1) to a position in front of h(8) that is effectively a Pioneer Ball – [CO is (k, y, r)] – as u goes to y. u sends y from V(8) to R(9) as u goes to r. Then, with a short L&H, u sends r from P(9) to V(9) as u goes to position at h(9), Figure IV.49, EXPEDITE.

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[31] Obviously, with the OSL either orientation is possible.

Figure IV.49: u makes h(9) and goes to y. u sends y south of h(2) – [CO is (y, r, k)] – as u goes to r. u sends r south of h(3), as u goes to k. u rushes k to the east[32], u gives k a rush or a line-rush on u to the north, Figure IV.50, STANDARD.

Sextuple Leaves (SxP)

The Standard and Delayed SxP leaves for COAC are shown in Figures IV.54 and IV.50. These are identical to what you would see in T-AC except that in Figure IV.47 k is positioned to have a straight-rush to h(2) rather than the traditional cut-rush. This position slightly shortens the shots from h(1) but facilitates the rush to h(2).

There are two ways to create these leaves: (i) Partner as Escape-Ball to h(7), and (ii) Partner as Escape-Ball to h(6), both are considered below.

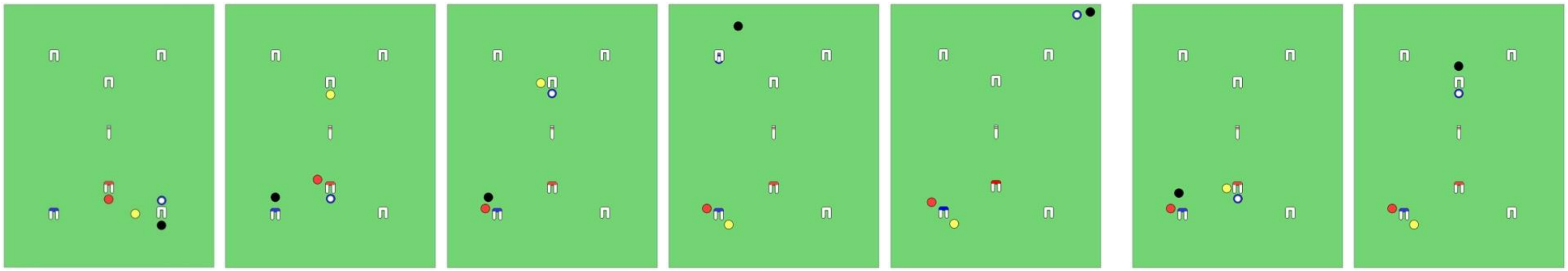
Let's do the Arithmetic: Partner as the Escape to h(7): In Figure IV.51, Striker (u) is in position at h(4). k is R(4), y is V(4) and r is P(5). RB=k, thus HAVE=R. Striker wants k to be the 3rd ball hit after h(6) is made. Thus, in (j=2) hoops WANT=P. In two FS, HAVE will rotate from R to P→GET=P, GET+1=R, and GET+2=V. WANT=GET so I can proceed with STANDARDs.

Figure IV.51: u makes h(4) and goes to k. u sends k towards h(8) converting it from R(4) to V(5), – [CO is (k, y, r)] –as u goes to y. u sends y from V(4) to P(6) as u goes to r. u sends r from P(5) to R(5) as u goes to position at h(5), Figure IV.52, STANDARD.

Figure IV.52: u makes h(5) and goes to r. u sends r from R(5) to V(6), the first Oppo Ball in the cross-wire at h(1) – [CO is (r, k, y)] – as u goes to k. u adjusts k converting it from V(5) to E(7,8), as u goes to y. u moves y from P(6) to R(6) as u goes to position at h(6), Figure IV.53, STANDARD.

[32] If the peel attempt leaves k un-rushable to the East, Striker can set a reverse OSL and rush k North and finish near c2 having left Oppos South of Peg.

Start (k, y, r)-s	STANDARD (r, k, y)-s	STANDARD (y, r, k)-s	Standard SxP	Delayed SxP	EXPEDITE (y, r, k)-s	STANDARD (k, y, r)-s



IV.51 – h(4)	IV.52 – h(5)	IV.53 – h(6)	IV.54	IV.55	IV.56 – h(5)	IV.57 – h(6)

Figure IV.53: u makes h(6) and goes to y. u rushes y from R(6) to h(1) – [CO is (y, r, k)] – and then croquets it to a position where y becomes the 2nd ball in the cross-wire, as u goes to r. u adjusts r to secure the cross-wire as u goes to k. Then u rushes and croquets k to the location where u will set up with k – which can be near h(7) or c3, Figures IV.54 and IV.55.

Let's do the Arithmetic: Partner as the Escape-Ball to h(6): We start again from Figure IV.51. Striker (u) is in position at h(4), k is R(4), y is V(4) and r is P(5). RB=k, thus HAVE=R. This time, after one hoop (j=1) Striker wants to reach Figure IV.56 where u is in position at h(5), y is R(5), r is V(5) and k is the Misplaced Pioneer M(6,1). Thus, WANT=P. In one FS, HAVE rotates from R to V→GET=V, GET+1=P and GET+2=R. WANT=GET+1, so I need an immediate EXPEDITE.

Figure IV.51: u makes h(4) and goes to k. u sends k from R(4) to h(1) as E(6,1) – [CO is (k, y, r)] – as u goes to y. u sends y from V(4) to R(5), as u goes to r. Then, with a short L&H, u sends r to be the first ball in the cross-wire at h(1), moving it functionally from P(6) to V(6) – as u goes to position at h(5), Figure IV.56, EXPEDITE.

Figure IV.56: u makes h(5) and goes to y. u sends y to be the second ball in the cross wire at h(1) moving it functionally from R(5) to V(6) – [CO is (y, r, k)] – as u goes to r. u adjusts r in the cross-wire moving it from V(5) to P(7) as u goes to k. u rushes k from E(6,1) to P(6) and then croquets it to R(6) as u goes to position at h(6), Figure IV.57, STANDARD.

Figure IV.57: u makes h(6) and goes to k. u sends k to h(7) – [CO is (k, y, r)] – and enters the jaws of h(7), Figure IV.46, or u rushes k to c3 and gives k a rush on u to h(2), Figure IV.55.

V.. GAINING THE INNINGS

This chapter deals with situations where Striker has just hit-in and believes it will be more profitable to plan for the next-break rather than attempting an immediate one. Ideally the setup will be done in one turn but sometimes in COAC it can take two. Both possibilities are discussed below.

In top-level T-AC, if one team (u/k) sets a leave, then their Oppos (r/y) will almost always shoot, trying to hit-in and capture the innings. This is often the preferred course of action because finessing (cornering) is rarely beneficial. If r/y finesse and the u/k team is capable of running a 3-ball break, then either u/k gets started or u/k sets another, often better, leave.

As with T-AC, shooting is usually the best course of action in COAC. But CO makes running 3-ball breaks and also incorporating the 4^{th} ball more challenging. Therefore, finessing, instead of shooting, can be a viable option.

The difference centers on the role of the Pivot-Ball. In T-AC, Striker can ignore an inconveniently placed 4^{th} ball while running a 3-ball break until a time arises when the 4^{th} ball can be incorporated into the break with minimum effort. The situation is different in COAC. Unless Striker is prepared to run a 2-ball break, or a 3-ball break with just L&Hs, then he must incorporate, or at least "visit", a poorly-placed 4^{th} ball every other hoop, which can force Striker to employ pass-rolls, long take-offs, and ball-to-ball play, all of which can lead to breakdowns.

In both T-AC and COAC, there can be two types of next-break leaves: (i) <u>Single-Customer Leaves</u> – these are set to advance the play of one ball, and (ii) <u>Two-Customer Leaves</u> – these are set to give both balls of a team the chance to progress, where the choice of which ball (u/k) will play is left up to the actions of Oppos (r/y). Setting these leaves, responding to them, and then playing from them is central to both games and is discussed below.

This chapter ends with a discussion of <u>Two Turn Leaves</u>, which are helpful when the Oppo Balls (r/y) are initially stuck in corners and u/k needs an extra turn to reposition them into good leave positions.

Single-Customer Leaves

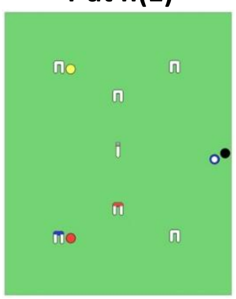
Suppose u/k comes onto the lawn with k for h(1) and u for h(10). Clearly u/k want to play k. If that is reasonable (probabilistically), then k should play. If k hits in but is unlikely (or fails) to get going, then k can set a leave for himself. If u has the significantly easier play to begin the turn, then u should play. The rules of COAC require the 1st ball of a team to score h(10) with a peel which prevents u from making h(10). Therefore, the only course of action for u is to set a leave for k. No matter which ball plays it will be setting a Single-Customer Leave of which there are two basic types: (i) Current/Pioneer Leaves or (ii) Cross-Wires.

Current/Pioneer (C/P) Leaves

Figures V.1 to V.4 present four examples of C/P leaves that cover most relevant possibilities: k can have a rush on his Partner-Ball (u) to the AFTER-Partner Ball (r) – Figures V.1 and V.2, or k can have a rush on u to the BEFORE-Partner Ball (y) – Figures V.3 and V.4. This rush can be directed to k's Current-Hoop, h(1), Figures V.1 and V.3, or to k's Pioneer-Hoop, h(2), Figures V.2 and V.4[33].

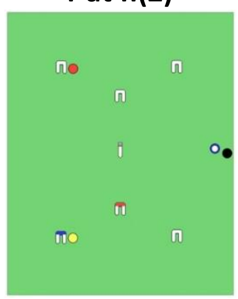
Rush on Partner to AFTER

Rush to h(1)
r at h(1)



V.1 – h(1)

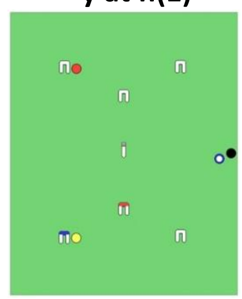
Rush to h(2)
r at h(2)



V.2 – h(1)

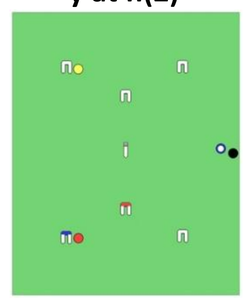
Rush on Partner to BEFORE

Rush to h(1)
y at h(1)



V.3 – h(1)

Rush to h(2)
y at h(2)



V.4 – h(1)

[33] These rushes are shown with Partner (u) in the lawn. These leaves are best set if Partner is the last ball used to set the leave. If this is not possible, then it may be easier to organize them as line rushes where a slight cut is needed to make the rush effective. For example, in Figure V.1, u and k could be on the south boundary near c4 with u west of k. This may be desirable if in setting the leave u or k was forced to play Partner as the 1st or 2nd ball and lagging back to Partner may be an issue.

C/P Leaves in T-AC: If Oppo Balls are for the same hoop, then play in T-AC is essentially color-blind, and therefore the four figures presented above collapse into two – Figures V.1 and V.3 are equivalent, as are Figures V.2 and V.4[34]. k should have an easy time getting started from each of these positions no matter what r/y does, as long as they do not hit in. If k can run a 3-ball break, then he can ignore the 4th ball – keeping it on ice as the Pivot Ball – biding his time until an opportunity arises to incorporate it into the break with minimal effort.

C/P Leaves in COAC: If Oppos (r/y) shoot at u/k or at each other, and fail to hit-in, then leaves shown in Figures V.1 – V.4 all lead to relatively easy starts for k. He will make one or two hoops before needing to retrieve, or at least visit, the 4th ball. That, or k will need to run a 3-L&H Break until the 4th ball is in range. If either r or y finesse from Figures V.1, V.2 or V.3, then once again k can get started with only minor discomfort. In each of these cases shooting is probably the best strategy for r/y. However, consider Figure V.4. knowing that k will start with u and need to go next to r, r can finesse into c4 leaving k a difficult roll shot if he is to make h(1) and start a break.

Cross-Wires

Cross-Wires can be done in T-AC and COAC at any hoop but are most effective at Striker's Current or Pioneer-Hoop. The benefit of a cross-wire is that, with both Oppos at the same hoop, Striker is able to stretch out the distance between the teams and minimize the chance of the Oppo hitting in. The trouble is that it is more difficult to set than a C/P Leave, especially coming on the lawn and having a turn involving only seven shots, the maximum number of shots available in a turn where no hoops are scored.

Figures V.5 – V.8 present alternatives that vary the Cross-Wire hoop (Current or Pioneer) and vary the direction of the rush (to the Current or to the Pioneer-Hoop). In T-AC all four of these can be made to work without much effort no matter what r/y does.

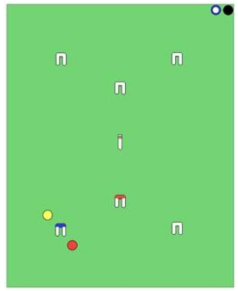
In COAC, one of these, Figure V.7: *Cross-Wire at Current, Rush to Current* can be progressed with some difficulty using 3-L&H. One scenario, Figure V.8: *Cross-Wire at Pioneer, Rush to Pioneer* cannot be progressed to h(1) if the AFTER ball finesses. Both Figure V.5: *Cross-Wire at Pioneer, Rush to Current* and Figure V.6: *Cross-Wire at Current, Rush to Pioneer* are workable. Thus, cross-wiring at Current or Pioneer should be accompanied by rushes to the other.

[34] If Oppos are for different hoops then their clip positions (back/forward balls) may encourage one ball to shoot over the other, or to finesse and neither team should entirely ignore color.

Cross-wire
At Pioneer
Rush to Current

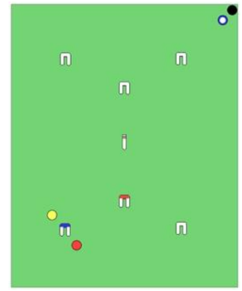
V.5 – h(1)

Cross-wire
at Current
Rush to Pioneer



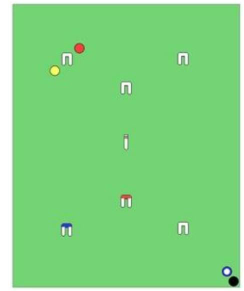
V.6 – h(1)

Cross-wire
at Current
Rush to Current



V.7 – h(1)

Cross-wire
at Pioneer
Rush to Pioneer



V.8 – h(1)

Two-Customer Leaves

When the Current-Hoops are the same: The most often observed Two-Customer Leave happens when u/k are both for h(1) and either u or k hits in and sets a leave. Whether u/k set the rush for u or k is mostly dependent on stretching out the opponent's shots and avoiding a double target[35]. In this scenario, the leave is no different than the single customer C/P Leave at h(1) in Figure V.1, and most often, u/k will play the next turn with the ball that has a rush to h(1).

When the Current-Hoops are Sequential: When partners are for different hoops, e.g., u is for h(2) and k is for h(1), then Two-Customer Leaves become much stronger and allow for an easy start (an easy initial hoop!) even if Oppos finesse. By placing one Oppo at each of u and k's Current-Hoops, u/k can ensure that one ball (u or k) will have a good pioneer at his Current-Hoop no matter what r/y chooses to do. This allows us to look at the C/P leaves discussed above in a new light.

Consider Figure V.9 which repeats Figure V.1 from above. Clearly u/k can ignore the possibility of playing u [for h(2)] and simply proceed with advancing k [for h(1)], as if this were a C/P leave set just for k. As discussed above, if y plays, then k will send u to h(2) and make h(1) with r. *k will not need to rush u to h(1) to make the Current-Hoop*. The obvious ease of this play for u/k may encourage r/y to play r. If r plays and does not hit in, and u/k is determined to play k, then k will need to rush Partner, u, to h(1) and then make h(1). Assuming k hits u first after h(1) – [CO is (u, r, y)] – he needs to go from u to r before going to y at h(2).

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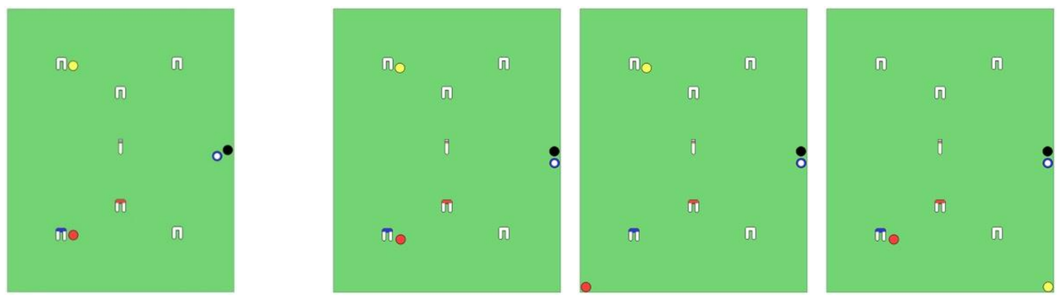
[35] In doubles, u/k may want one member to play instead of the other.

But this is a Two-Customer Leave and not a Single-Customer Leave. Therefore, u/k are not constrained to playing k. Now if r plays, and does not hit-in, u will play. u can send k to h(3) and go to y at (2), *again beginning the turn without the need to rush partner to the Current-Hoop*. This is the power of the 2-Customer Leave – at a cost of giving r/y the ability to determine which ball u/k will want to play, u/k can avoid an immediate (long) rush to their current hoop with Partner.

In Figure V.9, k has the rush on u to h(1). As discussed, if u/k really prefers to play k over u, then they can proceed assuming Figure V.9 is a Single-Customer Leave. However, giving k the rush on u to h(1) in Figure V.9 can be tricky to achieve, especially if u or k does not set the leave using Partner last. This brings to light another benefit of a 2-Customer leave – a rush to the Current-Hoop is not needed! Consider Figure V.10. No matter what r/y does, one of u or k will have an immediate start without needing to rush Partner to the Current-Hoop. But this is only true if u/k are truly willing to let r/y determine which ball they will play.

k for h(1), u for h(2)
AFTER Balls at Current-Hoops

Direct-Rush **Line Rush**



V.9 **V.10** **V.11** **V.12**

In Figure V.10, If r moves, then u will play. u can tap k and send it to h(3) with a pass-roll as u goes to y; or u can cut-rush k toward h(3) and then take-off to y at h(2). If y moves, then k will play. k has a rush that can cut u towards the middle of the South boundary which eases the difficulty of the roll shot loading P(2) and going to r at h(1).

A cost of having a line-rush instead of a direct-rush to h(1) for k is that r/y have two defensive plays that might force u/k into playing a long take-off after making an initial hoop: r could finesse to c1, Figure V.11, or y could finesse to c4, Figure V.12. In both cases, u or k can make one hoop without any long rushes to the hoop or any tough roll shots. After that first hoop, they each need a rush, so they can load the Pioneer-Hoop and get to a corner ball, followed by a long take-off to the ball at their Current-Hoop.

Anticipating Defensive Plays: u/k can set a slightly different leave, Figure V.13, that protects against the aforementioned defensive responses. k is still for h(1) and u is still for h(2), but now the BEFORE-Balls (instead of the AFTER-Balls) are at Current-Hoops and both u and k have a rush to the farthest corner from their Current-Hoops. In this situation, u/k must go to the ball that just played before they can go to the ball at their Current-Hoop. If r plays away, say to c3 as in Figure V.14, then k has a rush on u towards it and can expect to get a rush on r to the South or West to make the croquet stroke going to y easier. After making h(1), k will need to visit u near c3, but getting to a pioneer at h(2) from c3 is a much easier proposition than from c4, as would be required in Figure V.12.

k for h(1), u for h(2)
BEFORE Balls at Current Hoops

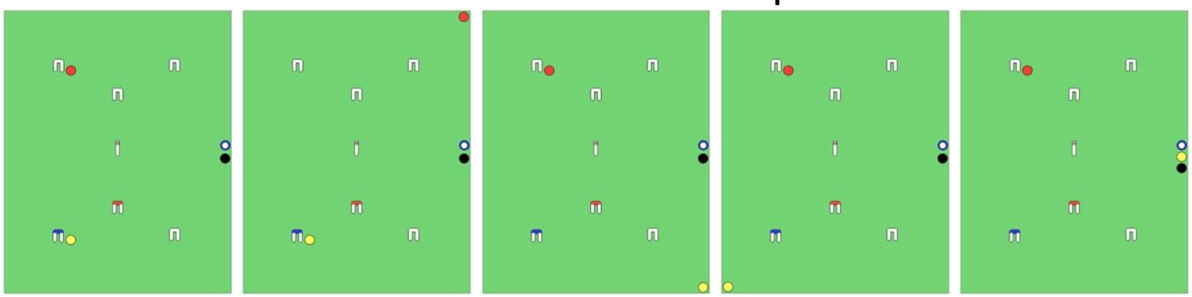


Figure V.13 **Figure V.14** **Figure V.15** **Figure V.16** **Figure V.17**

If y plays away to c4 as in Figure V.15, then u can rush to it and get a rush West or Northwest to make the croquet stroke easier. If y chooses to hide in c1 as in Figure V.16, then u will come to hit it before h(2) and be able to roll it to P(3) while going to r at h(2). With the BEFORE balls at the current hoops, there are fewer effective hiding spots for r/y. This may encourage r/y to attempt a hit-in and possibly get between u and k, Figure V.17.

If an Oppo succeeds in getting between u and k on the boundary (y in Figure V.17), then u/k can choose between a long rush on partner to the Current-Hoop [i.e., k plays, and uses y to gain a rush on u to h(1)] or a tough roll shot to the ball at their Current Hoop [i.e., u plays sending y to h(3) going to r at h(2)]. This allows u/k to play to their strengths or to play a specific ball if they have a preference. If the 3 balls are very close, an aggressive u/k could try for a combination shot, hoping to move the Partner ball into the lawn while the roqueted AFTER-Ball goes out of bounds near where it would have been with a gentle shot. While possible, a dead ball canon is quite risky.

When the Current Hoops are Far Apart: So far, u and k have been flexible in where they joined because both Oppo Balls were on the same side of the lawn, but when the Oppos are spread out u/k must choose wisely. If u is for h(3) and k is for h(1) they can still put an Oppo Ball at each of their hoops, but instead of having the whole East boundary as before, they must pick c2 or c4 as a hiding spot to make r/y's shots longer.

The first example in Figure V.18 has the AFTER balls at the Current-Hoops and u/k in c4. u/k should have an easy time getting Partner to the Pioneer-Hoops (k with a long roll and u with a short rush and take-off) while going to the Current-Hoop. With the AFTER-Balls at the Current-Hoops, Striker does not have to worry about hitting the BEFORE-Ball until after it scores a hoop. For k, c4 would be inconvenient as it is the farthest from the pioneer hoop [h(2)], but y cannot play to c4 as k could hit it first and move it out before hitting u. For u, c2 is the least convenient as it is very far from h(4). In this way, r/y can force a long take-off based on which area u/k decide to hide. In Figure V.18 r could hide in c2 and if u/k swap corners as in Figure V.19, then y could run to c4.

u for h(3), k for h(1)
AFTER Balls at Current Hoops

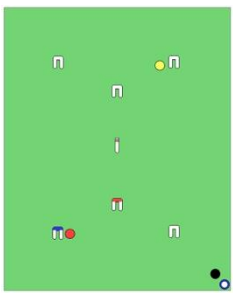


Figure V.18

Figure V.19

u for h(3), k for h(1)
BEFORE Balls at Current Hoops

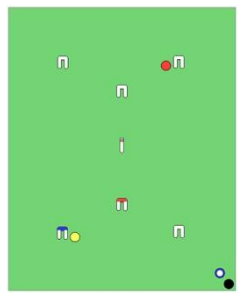


Figure V.20

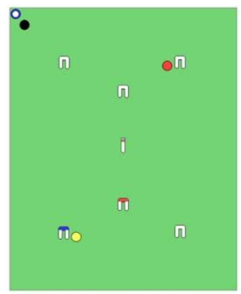


Figure V.21

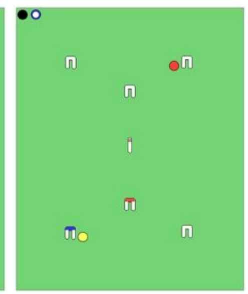


Figure V.22

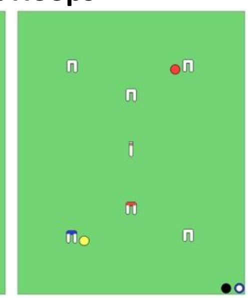


Figure V.23

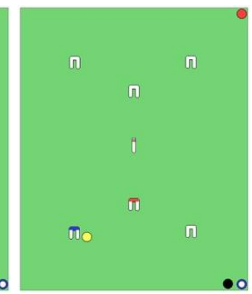


Figure V.24

If instead the BEFORE-Balls are at the Current-Hoops, as in Figures V.20 – V.23, then u/k must go hit the ball that just played before scoring their hoop. This presents a problem as r/y can force u/k to make a long take-off and end up with a bad pioneer. In Figure V.20, r could play to c3 and while k has a good P(1) he would have a long rush and a long take-off to r followed by another tough choice of difficult roll or long take-off back to y. In Figure V.21, y could finesse to c1 and force u into the same position.

To mitigate against this stifling defense, u/k could set a rush to the farthest corner for one ball as in Figures V.22 and V.23. Looking specifically at Figure V.23, if y finesses in c1, u has a rush to it and a ball at its hoop. If r finesses into c3 as in Figure V.24, k has no helpful rush to dig r out. In this case, u should still play. A nice rush towards c1 will allow u to send k to P(4) and get a rush on y to c3.

This rush can go directly to h(3) or all the way to r in c3. If u makes a bad rush, y can be sent to reception while u goes to r and tries a long L&H to get position at the hoop while sending r away towards the peg or h(1). Alternatively, u can take off from y and try to roll up to the hoop from c3. The leaves in Figures V.22 and V.23 have this specific weakness that makes them more like Single-Customer Leaves if r/y plays the most defensive finesse.

When the Current-Hoops are Numerically Distant, but Physically Close: Having explored Two-Customer Leaves where the Current-Hoops are the same, sequential, or far apart; we are left with odd scenarios when the Current-Hoops are too close to each other. If u is for h(6) and k is for h(2) it is too risky to put an Oppo at each hoop without a cross-wire as it would leave an 8-yard shot. This can come up with either middle hoop and forces u/k to make some concessions in their leave. In Figure V.25 we can see that r is not the ideal P(2), but it is farther from y which is a misplaced P(6). Because the ball for u to use is so far out of position, u has a rush to the East boundary and k will be left with a long roll shot to send u to P(3) and get to r at h(2). To get y as close to h(6) while being as far from r as possible, u/k were left with only one spot to run far from the Oppos, c1. Since u does not have a ball at its hoop and k has a less than ideal P(2), it is very risky to use BEFORE-Balls. Having the AFTER-Balls as pioneers eliminates many of the complications until after Striker scores the first hoop of the turn and hopefully has a nice pioneer.

u for h(6), k for h(2)

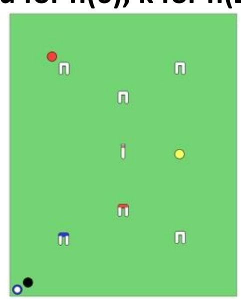


Figure V.25

u for h(6), k for h(5)

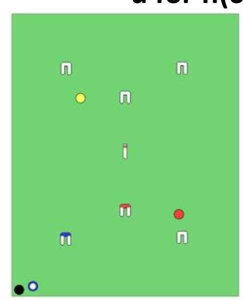


Figure V.26

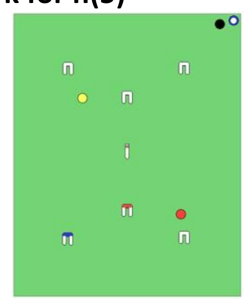


Figure V.27

Figures V.26 and V.27 exemplify these concessions when u is for h(6) and k is for h(5). The difference between these leaves is that u/k is preventing r/y from hiding in c1 or c3, respectively. While r can still finesse to c4 and slow u down, the leave in Figure V.26 prevents y from finessing into c1. Even when the balls are not in ideal positions, u/k can build a 3-ball break immediately with a Two-Customer Leave, even in COAC.

Two-Turn Leaves

Rarely in modern T-AC does a top player attempt to play defense. There is usually a good chance to make a hoop and build a break and the risk of giving the Oppo an extra shot, when offense is so easily generated, is too large to concede. With CO, we have seen how different break building and maintenance is and how quickly an otherwise reasonable build can fall apart. With that in mind, some older defensive tactics may be appropriate when both Oppo Balls are inconveniently placed and there is no good rush at the outset of a turn. Often, Striker can get one Oppo Ball in the lawn, but not both. Striker should be more concerned with defense and leaving the longest shot options as this leave is only meant to facilitate another, more offensive minded leave. While it is nice to have a situation where a missed shot could present a chance to make hoops, the main goal of this leave is that no finesse can deny the opportunity to set a good leave (with both Oppo Balls in useful positions, but far apart) next turn.

When setting a Two-Turn Leave, Striker must protect the corners to make finessing less effective. It is important to identify which corners the Oppo is likely to hide in and either set a rush towards that corner or roll towards the corner and set a trap there. If it is clear which Oppo Ball would play to a specific corner, Striker can plan by rolling to a corner where the BEFORE ball might try to hide (which makes a trap more effective) or setting a rush to a corner where the AFTER ball may hide (which makes it possible to get a rush on said AFTER ball). Hopefully, Striker has at least one ball for a corner hoop which eliminates that corner from any concern as a ball there would be quite helpful offensively (especially if it is moved a few yards out of the corner as Striker sets the next leave). In the best-case scenario, this eliminates two corners from the list of hiding places (if Strikers balls are each for a different corner hoop) and Striker can roll away towards a 3rd corner leaving only one corner to hide in. When setting a good leave (next turn) it is easier when the Oppo Balls are near adjacent corners, rather than strewn diagonally across the lawn, far apart. To avoid this annoyance, Striker can identify the ball that could make this inconvenient scenario and set a rush such that it would be the AFTER ball. This would allow the ball setting the good leave next turn to possibly get a rush on that Oppo and claim the troublesome corner as a place to join.

In an ideal situation, this leave would punish any attempted hit-ins with reasonably buildable offense while leaving no great defensive finessing available to Oppos. If the leave has limited offensive potential, the Oppos should have nothing shorter than a 20-25-yard shot. If Striker is able to use a convenient hoop to wire the shorter options, the shots may be 30-yards or more. With good planning, even the most defensive finesse leads to a solid two-customer leave or at least a leave with no shots less than 20-yards.

VI.. AN INTRODUCTION TO PEELING

This chapter introduces peeling, Back-Peels, Straight-Peels and Transit-Peels, with details provided in the next chapter. Peeling can occur every 3-hoops when only using the STANDARD Procedure. Other Procedures are utilized to run faster peeling programs.

3-Hoop Cycles

<u>A Standard-Triple-Peel: with Back-Peels at h(10) and h(11) and a Straight-Peel at h(12)</u>

Start
(y, u, r)-s

VI.1 – h(1)

(r, y, u)-s

VI.2 – h(2)

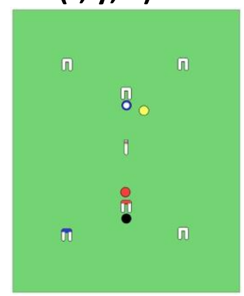
(u, r, y)-s

VI.3 – h(3)

h(10)-Peel A-h(3)
(y, u, r)-s

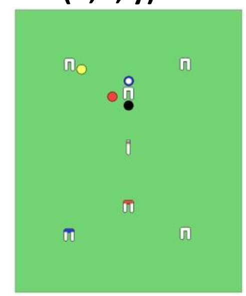
VI.4 – h(4)

(r, y, u)-s



VI.5 – h(5)

(u, r, y)-s



VI.6 – h(6)

h(11)-Peel A-h(6)
(y, u, r)-s

VI.7 – h(7)

(r, y, u)-s

VI.8 – h(8)

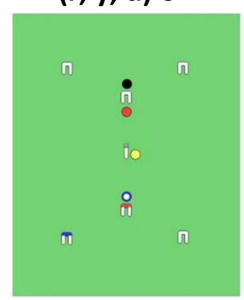
(u, r, y)-s

VI.9 – h(9)

(y, u, r)-s

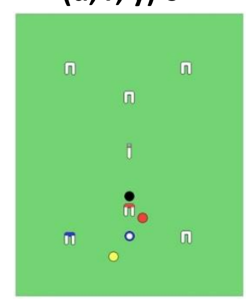
VI.10 – h(10)

(r, y, u)-s



VI.11 – h(11)

h(12)-Peel S-h(12)
(u, r, y)-s



VI.12 – h(12)

Back-Peels: In a Back-Peel, as traditionally understood, Striker and Peelee share the same physical hoop. Striker makes it and then immediately attempts the peel in the opposite direction. *Here Peelee is the Reception-Ball, the first ball used after making a hoop*. Figures VI.1 – VI.7 illustrate that Back-Peels can be used to complete the h(10) and h(11) peels, [i.e., peels A-h(3) and A-h(6)]. The peel at h(12) is a different matter and will be discussed later. This section starts with details of the Back-Peel at h(10).

Let's do the Arithmetic: Figure VI.1 is the starting point and RB=u. Here k is for h(1), y is R(1), u is V(1), and r is P(2). The goal is to complete the peel at h(10), A-h(3), just after making h(3) when u is R(3) as shown in Figure VI.3. So, HAVE=V, WANT=R. j=2. In two FS, HAVE rotates from V to R→GET=R, GET+1=V, and GET+2=P. WANT=GET, therefore two STANDARDs gets us to Figure VI.3.

Figure VI.1: k makes h(1) and goes to y. k sends y from R(1) to V(2) – [CO is (y, u, r)] – as k goes to u. k sends u from V(1) to P(3,10) as u goes to r. k sends r from P(2) to R(2) as k goes to position at h(2), Figure VI.2, STANDARD.

Figure VI.2: k makes h(2) and goes to r. k sends r from R(2) to V(3) – [CO is (r, y, u)] – as k goes to y. k sends y from V(2) to P(4) as k goes to u. k sends u from P(3) to R(3,10) as k goes to position at h(3), Figure VI.3, STANDARD.

Now it is time for the peel, which also is accomplished with STANDARD.

Figure VI.3: k makes h(3) and goes to u. k peels u at h(10), A-h(3) – k sends u from R(3,10) to V(4) – [CO is (u, r, y)] – as k goes to r. k sends r from V(3) to P(5) as k goes to y. k sends y from P(4) to R(4) as k goes to position at h(4), Figure VI.4, STANDARD.

The Back-Peel at h(11) is shown in Figures VI.4 – VI.7. It follows the same steps used to complete the h(10)-Peel A-h(3).

In T-AC or COAC, Back-Peels at h(10) and h(11) take 3-hoops, matching the 3-hoop cycle of the STANDARD Procedure.

Jawsed Back-Peels: In T-AC a jawsed peel (Back-Peel or Transit-Peel) is often considered as good as a completed peel [and sometimes even better, e.g., at h(11)]. This is because the jawsing need not alter Striker's plans. This is also true in COAC. Consider Figure VI.4 once again, but now assume that u is jawsed. In this case, k can continue virtually as planned – make h(4) with y, go do the rush-peel at h(10), send u to h(11) going to r, Figure VI.5. The only difference is that, due to CO, k will need to approach h(6) off u if k wants to achieve the h(11) peel on time, and so k may choose to pass-roll u to h(11) as he goes to r, instead of the more traditional takeoff.

Failed Back-Peels: In T-AC, a failed Back-Peel at h(10), A-h(3), can be retried as a Transit-Peel W-h(5), by leaving r at h(10) as E(5,10) instead of sending r to h(5) as P(5). Or, Striker can proceed from Figure VI.4 sending y as the E(6,10) and converting his Standard-Triple into a Delayed-Triple attempting the h(10)-Peel as a Transit-Peel W-h(6). Striker has the same options in COAC. The attempt W-h(5) is done just as in T-AC. Striker can also manufacture an attempt W-h(6) but must swap r and y using the LIMITED Procedure to make h(4) and then the 3-FIX Procedure to make h(5).

ADDED INFO #1: Special Properties of Back-Peels: This note explores special properties of Back-Peels and how they mesh with Transit-Peels. This blending of peel-types is particularly useful in Sextuples.

The h(12)-Peel: With the peels at h(10) and h(11) in the books, attention turns to the h(12)-Peel. It can be done as a Transit-Peel [W-h(8) or W-h(11)] as discussed in the next section.

For now, focus is on completing the h(12)-Peel as a Straight-Peel S-h(12).

Straight-Peels: A Straight-Peel occurs when Striker and Peelee converge at the same hoop and the peel is attempted just before the hoop is made, either in one shot, "Irish", or as separate shots. In this case, *Peelee is the third ball used, the Pioneer-Ball*. The benefit of a Straight-Peel is that Striker can use two balls to arrange to improve the position of Peelee with a short rush, readying it for the peel[36]. Two or more Straight-Peels (Straight-Doubles, or Triples, etc.) are possible in COAC, but requires using the REPEAT Procedure, which is presented later. The single Straight-Peel at h(12) using STANDARDs is discussed here.

Let's do the Arithmetic: The starting point is Figure VI.7 [k is for h(7) and u is V(7)]. The goal is to complete the h(12)-Peel S-h(12). Let RB=u, thus HAVE=V. When Striker is in position at h(11) – Figure VI.11 – u wants to be P(12,12). Thus, WANT=P, j=4, Mod(3:4)=1. In one FS, HAVE will rotate from V to P→GET=P, GET+1=R, and GET+2=V. WANT=GET, so Striker needs to execute four STANDARDs and k will advance from Figure VI.7 to Figure VI.11. After that, the h(12)-Peel can be completed as follows:

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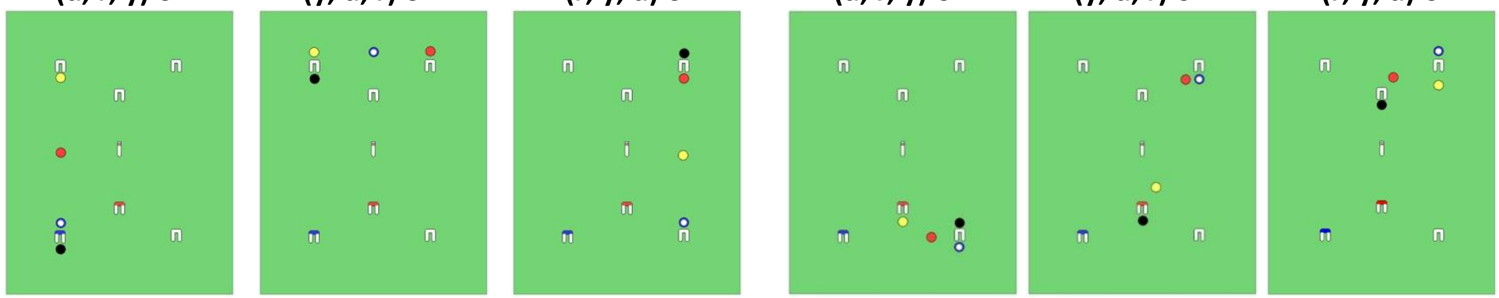
[36] It is often the case Striker will want to use Peelee as the second ball, as Pivot, or even the third ball, as Pioneer, after the hoop, rather than the first. Here Striker needs to avoid hitting Peelee as the Reception Ball.

Figure VI.11: k makes h(11) and goes to r. k sends r from R(11) to V(12) – [CO is (r, y, u)] – as k goes to y. k sends y from V(11) to the "deep ball position" as k goes to u. k peels u at h(12), S-h(12), as k goes to position at h(12), Figure VI.12[37], STANDARD[38].

Jawsed or Failed Straight-Peel at H(12): In T-AC, Striker can follow a jawsed peel at h(12) with a half-jump to bring Peelee and Striker through, or with a full-jump to bring Striker through followed by a bombard to finish the peel. Both of these plays are possible in COAC, but CO makes them more challenging.

A Delayed-Triple-Peel using only Transit-Peels

(u, r, y)-s	(y, u, r)-s	Start (r, y, u)-s	(u, r, y)-s	(y, u, r)-s	h(10)-Peel W-h(6) (r, y, u)-s



VI.13 – h(1)	VI.14 – h(2)	VI.15 – h(3)	VI.16 – h(4)	VI.17 – h(5)	VI.18 – h(6)

Transit-Peels: *Here Peelee is the Pivot-Ball, the second ball used after making a hoop.* They are done "on-the-way-to" ("W-") a Pioneer Hoop, [e.g., W-h(10)]. Important new concepts for CO are Misplaced-Pioneers and Helper-Balls.

Figures VI.13 – VI.24 take Striker (k) through a Delayed-Triple-Peel from h(1) to h(12). All three peels are completed as Transit-Peels, and each is accomplished using just the STANDARD Procedure over three-hoop cycles.

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[37] In Figure VI.12, r is in a position where it can be used first after k makes h(12). This technically makes the play from Figure V.25 to Figure V.26 a REPEAT and not a STANDARD.

[38] Paddy Chapman, BECT page 54 describes an alternative to the "deep ball position" that works as well in COAC.

Let's do the Arithmetic: This example was chosen to need only STANDARDSs. That said, it is still useful to confirm that it is going to work! In Figure VI.13 k is for h(1), u is R(1), r is V(1), and y is P(2). What action does Striker need to take to complete the h(10)-Peel W-h(6)? Let u=RB. Thus, HAVE=R. In (j=4) hoops, at h(5), Striker wants u to be V(5,10). Thus, WANT=V and mod(3:j)=1. In one FS, HAVE rotates from R to V→GET=V, GET+1=P, and GET+2=R. WANT=GET so STANDARDs work. In the analysis below, details are limited to the first peel at h(10), which can be thought of as starting in Figure VI.15.

Figure VI.15: Striker (k) is for h(3), r is R(3), y is V(3) and u is P(4). k makes h(3) and goes to r. k sends r from R(3) to V(4) – [CO is (r, y, u)] – as k goes to y. k sends y from V(3) to P(5) as k goes to u. k sends u from P(4) to R(4) as k goes to position at h(4), Figure VI.16, STANDARD.

The start of the 1st peel is the only time during a series of Transit-Peels that u can be a "proper" Pioneer. Otherwise, u will be a Misplaced-Pioneer M(i,j) – the Pioneer for h(i) residing at h(j) – the last peeling hoop. This is an important consideration in COAC, and a big difference from T-AC.

Figure VI.16: k makes h(4) and goes to u. k sends u from R(4) to V(5,10) – [CO is (u, r, y)] – as k goes to r. k sends r from V(4) to E(6,10) as k goes to y. k sends y from P(5) to R(5) as k goes to position at h(5), Figure VI.17, STANDARD.

Pre-Peel Position of every Transit-Peel: *u is V(5,10), the Pivot-Ball for h(5) and also the Peelee at h(10). r is E(6,10), the AFTER-Ball and the only Escape-Ball possible for u. This is the "Pre-Peel-Position" of every well-organized Transit-Peel that needs an Escape-Ball – Peelee (u) and the Escape-Ball (AFTER) (r) are at the Peeling-Hoop as Pivot and Pioneer, and Striker is in position at his hoop with the BEFORE-Ball (y) as the Reception-Ball.*

Figure VI.17: k makes h(5) and goes to y. k sends y from R(5) to V(6) as a **Helper-Ball** – [CO is (y, u, r] – as k goes to u. k peels u from V(5,10) to M(7,10) as a **Misplaced-Pioneer** as k goes to r. k rushes r from E(6,10) to P(6) and then croquets r to R(6) as k goes to position at h(6). Figure VI.18, STANDARD.

"Helping" Misplaced-Pioneers get to their hoops with Helper-Balls: *After making h(5), or more generally, after making the hoop immediately before a Transit-Peel attempt, if Striker (k) follows the STANDARD procedure, k will go to the Reception-Ball, the BEFORE-Ball (y). y will be converted from Reception to Pivot and, as such, it can be positioned anywhere on the lawn. Where should Striker put y?*

After y, k must go next to u. Ignoring the peel, Striker would send u from V(6) to P(7). But Striker cannot send u to P(7) and simultaneously try the peel! Striker wants/needs the peel and is prepared to sacrifice u's position in the process.

No matter what happens with the peel attempt (it succeeds, fails, or jaws), using STANDARD for the peel attempt will convert u from Pivot to a ***Misplaced-Pioneer****, M(7,10). Knowing what we now know – that u will be used to make h(7) – it makes no sense to follow the T-AC prescription and send y to P(7). Instead, it is more useful to send y to a "****Helper-Ball****" Position. That is, y can be positioned on the playing side of the peeling hoop where it can be used in a variety of ways:*

> *<u>If the peel is successful</u>, y can be used to help k get a rush on u. After escaping to h(6) with r and making h(6), k can send r to V(7) near h(11) and get to y. Then k can rush y to c3 and send it to P(8) while getting to u, such that u can be rushed from M(7,10) to P(7), and the break can continue.*
>
> *<u>If the peel fails</u>, k could do the same play as if the peel succeeded unless u is not rushable to h(7). In this case, k can leave r near h(10) as an Escape ball to h(8), E(8,10) while getting a rush on y to h(7) using 3-Ball. This scenario can be augmented if u is not rushable to h(7) because the peel jawsed.*
>
> *<u>If the peel jawses</u>, k could ignore u, but it would take a few hoops to get u moved to h(11) and Striker may be forced into a straight double. To avoid this slowdown, k could send r to P(8) while going to y and using y to bombard u through h(10). The trick is that k needs to gain a rush on u to h(7) on the bombard shot while hoping that y does not carom off of u to a blocking position.*

(u, r, y)-s

VI.19 – h(7)

(y, u, r)-s

VI.20 – h(8)

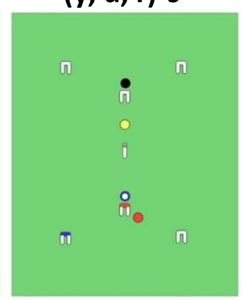
h(11)-Peel W-h(9)
(r, y, u)-s

VI.21 – h(9)

(u, r, y)-s

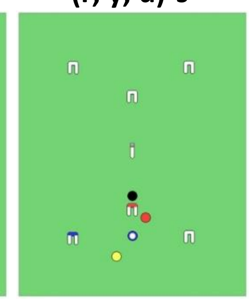
VI.22– h(10)

(y, u, r)-s



VI.23 – h(11)

h(12)-Peel W-h(12)
(r, y, u)-s



VI.24 – h(12)

Figures VI.19 **–** VI.21, and then Figures VI.22 – VI.24 repeat the steps outlined above for the h(10)-Peel. They are used to complete the h(11) and h(12)-Peels as Transit-Peels. Completing the h(12)-Peel as a Transit-Peel – *a 2nd ball peel* – is unconventional but a valid way to proceed. The more traditional option of a Straight-Peel at h(12) – *a 3rd ball peel* – was discussed with Standard-Triples above.

Finally, while not shown, k can peg out u and itself following the order of the balls suggested by the STANDARD Procedure.

2-Hoop and Single-Hoop Cycles

The first sections of this chapter showed how a Transit-Peel, a Back-Peel or Straight-Peel can take place every three hoops using just the STANDARD Procedure. This is fast enough to complete a Standard or Delayed-Triple, if it is error-free. But it is not fast enough if there are failures along the way, or if the goal is to run a Quadruple or a Sextuple. Here it is necessary to complete peels more rapidly – after every two hoops, or even after every hoop. The ball movements associated with doing so are familiar to players in T-AC, but can it be done in COAC? The answer is yes. How it is done is developed in this section considering first what is done in T-AC and then what works in COAC. First, a couple of definitions that apply to T-AC and COAC. In the book New Roles for Peeling in Croquet, we explore the characteristics of 2-Hoop – 2HP – and Single-Hoop – HP – Peeling Cycles in great detail. We use 2HP and HP at times in this book and therefore provide brief definitions:

HOOP, HOOP, PEEL ("2HP"): Starting from a 4-ball break, Striker makes his Current-Hoop (**HOOP**), sends out two balls, peelee to the peeling hoop and a second ball either to the peeling hoop as an Escape ball or as a Pioneer two hoops forward. Then Striker makes his Next-Hoop (**HOOP**), returns to the peeling hoop, completes the peel (**PEEL**), and makes his way to the following hoop.

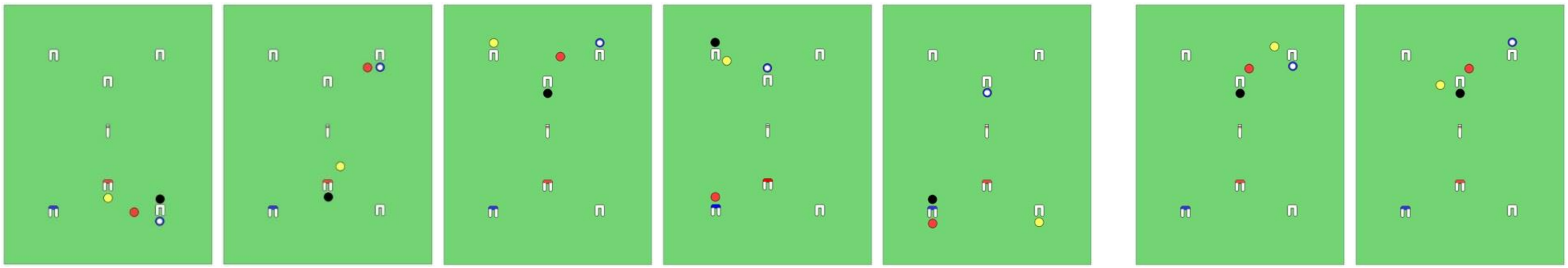
HOOP, PEEL ("HP"): Once set-up, Striker makes his Current-Hoop (**HOOP**), sends the Reception Ball to be the Escape or Roll-To ball at the Next-Peeling Hoop, completes the Peel (**PEEL**) at the Current-Peeling Hoop, and makes his way to his Next-Hoop.

2-hoop and Single-Hoop Transit-Peels in T-AC

The mainstay of peeling in T-AC is the Transit-Peel. It has several well-known features: each peel is a self-contained unit that involves two hoops and uses all three non-Striker balls at each hoop; the Peelee is adjusted twice – once when it is sent to the Peeling-Hoop, and again just before the peel; Striker uses one Oppo as an ordinary Pioneer and the second as an Escape-Ball (or a Pioneer-Ball to "roll-peel" toward) in order to make the hoop after the peel. Most significantly, *Peelee is maintained as the Pivot-Ball and is never needed as a Misplaced-Pioneer*.

The mechanics of 2-hoop Transit-Peels in T-AC

h(10) W-h(6) | h(11) W-h(8) | Insurance-Ball | Speedy-Ball



VI.16 – h(4) | VI.17 – h(5) | VI.25 – h(6) | VI.26 – h(7) | VI.27 – h(8) | VI.28 – h(6) | VI.29 – h(6)

The mechanics of 2-hoop Transit-Peels in T-AC are illustrated for the h(10) and h(11)-Peels in the panel above. Figure VI.16 is a position that is commonly reached in both T-AC and COAC and, therefore, is a good starting point.

The h(10)-Peel: Figure VI.16: k makes h(4) and goes to u. k sends u toward peel position at h(10) and then sends r to be the Escape-Ball from h(10) to h(6). k goes to y and sets up to make h(5), Figure VI.17. k makes h(5) and sends y to be P(7) as k goes to u. k rushes u to peel position, peels u at h(10) and then escapes to h(6) with r, Figure VI.25.

The h(11)-Peel: Figure VI.25: k makes h(6) and goes to r. k sends r to P(8) and then k sends u to be the Peelee at h(11). k goes to y and sets up to make h(7), Figure VI.26. k makes h(7) and sends y to be P(9) as k goes to u. k rushes u to peel position, peels u at h(11) going to the Roll-To ball (r), at P(8), Figure VI.27.

Things to note about the Peeling Process in T-AC

There are four important things to note about the peeling process in T-AC.

1. **Sending Escape-Ball and the Peelee to the Peeling Hoop**: In T-AC, Striker can send Peelee and then the Escape-Ball, or vice versa, for the first peel. But after that, if peels follow every two hoops (2HP), then Striker is constrained to sending the Escape-Ball before Peelee. (*If the direction of the Peel permits, then the Escape-Ball can be a Roll-to Pioneer-Ball as shown in Figure VI.28).*

2. **Recovering from a Jawsing:** Jawsing need not slow down the 2HP process. If u is jawsed in either Figure VI.25 or Figure VI.27, then k can continue by rush-peeling u and croqueting u to where it is needed at the next peeling hoop. Admittedly, being jawsed limits where the rush can be sent and can result in a more difficult follow-on croquet-shot, particularly if the hoop being rush-peeled is an "outward hoop" (i.e., the hoop is scored toward a nearby boundary), as in the case of h(10).

3. **Fixing a failure**: If no provisions have been taken (see item 4 below), then a Transit-Peel that fails can be redone consuming one additional hoop if a roll-peel is possible [e.g., peeling h(10) W-h(7) after a failure A-h(6)]. Otherwise, a failed peel will take two hoops to redo (just as if it were a new peel [e.g., peeling h(10) W-h(9) after a failure W-h(7)].

4. **Setting up to peel again after one hoop**: Consider Figure VI.17 but suppose Peelee (u) or the Escape-Ball (r), or the combination, are positioned such that the peel is unlikely to happen, and k wants to set up to redo it. And suppose k does not like the prospect of a roll-peel from h(10) to h(7). In this case, from Figure VI.17, k can skip sending y to P(7) as shown in Figure VI.25 and instead send y as a 2nd Escape-Ball (an "Insurance-Ball") to E(7,10) as shown in Figure VI.28.

   In the opposite circumstance, suppose u and r are in such good position that k wants to be able to attempt the h(11)-Peel W-h(7). In this case, from Figure VI.17, k can once again skip sending y to P(7) as shown in Figure VI.25 and, in this case, send y as a 2nd Escape-Ball (a "Speedy-Ball") to E(7,11) as shown in Figure VI.29.

   Figure VI.28 and Figure VI.29 show these actions (sending an Insurance-Ball or a Speedy-Ball) as having been correct because the h(10)-Peel failed in Figure VI.28 and succeeded in Figure VI.29. But, from Figure VI.25, Striker had to guess. And that decision could have been wrong – a needless Insurance-Ball being sent in Figure VI.28 if the h(10)-Peel had succeeded, and a useless Speedy-Ball being sent in Figure VI.29 if the h(10)-Peel failed[39].

The four activities just discussed work in T-AC but not in COAC because the balls get out of CO. In T-AC, if the ball chosen as the Escape-Ball happens to be the AFTER-Ball, then CO is violated when it is sent to the next Peeling-Hoop. If it is the BEFORE-Ball, then it cannot be used in an escape. This does not matter in T-AC, but it is everything in COAC.

[39] We will show later that the REPEAT Procedure can be used to generate the correct ball – Insurance or Speedy – after the peel has been attempted and the result is known. The cost is needing a short L&H.

2-hoop and Single-Hoop Transit-Peels in COAC

Let's start again, this time from Figure VI.30 and explore how the h(10) and h(11)-Peels can happen in COAC, each involving just two hoops. There are three major ways to proceed that can be developed by asking what might appear to be an odd question: What combination of Procedures can be used to make the h(11)-Peel? This question is being asked while the h(10)-Peel remains unmade! But nothing prevents the Arithmetic of CO from answering the question that was posed.

Let's do the Arithmetic: Let RB=u. In Figure VI.30, k is for h(5) and u is V(5,10), thus HAVE=V. In two hoops time, as shown in Figure VI.32, Striker wants u to be V(7,11), thus WANT=V. In (j=2) FS, HAVE will rotate from V to R→GET=R, GET+1=V, and GET+2=P. WANT=GET+1. Over the next two hoops Striker needs to use an EXPEDITE and a STANDARD, in either order, or the equivalent.

From the starting point, Figure VI.30, it is evident that using EXPEDITE first will not work because EXPEDITE sends V→R (i.e., the Pivot-Ball becomes the Reception-Ball), which is not possible if the h(10)-Peel is to be completed – u is the Peelee, V(5,10), and after the peel will be near h(10) and cannot reasonably be used as R(6). So, striker should start with a STANDARD and follow with the EXPEDITE.

[STANDARD + EXPEDITE]

Start	STANDARD	EXPEDITE
(y, u, r)-s	**(r, y, u)-s**	**(y, u, r)-s**

VI.30 – h(5) **VI.31 – h(6)** **VI.32 – h(7)**

Figure VI.30: k makes h(5) and goes to y. k sends y from R(5) to V(6), as a Helper-Ball – [CO is (y, u, r)] – as k goes to u. k peels u at h(10), W-h(6), converting u from V(5,10) to M(7,10) as k goes to r. k escapes with r to h(6), converting r from E(6,10) to P(6) and then croqueting it to R(6) as k goes to position at h(6), Figure VI.31, STANDARD.

Figure VI.31: k makes h(6) and goes to r. k sends r from R(6) to P(8) – [CO is (r, y, u)] – as k goes to y. k sends y from V(6) to R(7) as k goes to u. Then, k rushes u to P(7) and, with a short L&H, k sends u to V(7,11) as k holds for position at h(7), Figure VI.32, EXPEDITE. *This works, but a short L&H is necessary, sending u to h(11), returning it to the role of Pivot while k holds at h(7). The rush from h(10) must go far enough past h(7) so Striker can send u to h(11) but not so far as to make the approach to h(7) difficult.*

Figures VI.33 – VI.36 show how [TAC + 3-FIX] works to generate a 2-hoop peeling cycle.

In the development of the Procedures, [STANDARD + EXPEDITE] was identified as being equivalent to [TAC + 3-FIX] when measured over two hoops. STANDARD rotates each ball one FS, EXPEDITE rotates them each two FS. In sum the balls rotate 3 FS and mod(3:3) = 0, impling that, after two hoops, the balls are returned to their original Functions. [TAC + 3-FIX] also moves each ball a total of total three (i.e., net 0) FS: TAC moves R→P [2 FS], V→V [0 FS] and P→R [1 FS]. Then 3-FIX rotates the new R→P [2 FS] and the new P→R [1 FS] and the new V→V [0 FS]. In sum, all three balls move 3 FS, i.e., return to their original Functions.

Start	[TAC +	3-FIX]	[TAC +	3-FIX]	[STANDARD +	3-BALL]
(y, u, r)-s	(r, y, u)-os	(y, u, r)-s	(r, y, u)-os	(y, u, r)-s	(r, y, u)-s	(y, u, r)-s

VI.33 – h(5) VI.34 – h(6) VI.35 – h(7) VI.36 – h(8) VI.37 – h(9) VI.38 – h(6) VI.39 – h(7)

Figure VI.33: k makes h(5) and goes to y. k sends y from R(5) to P(7) – [CO is (y, u, r)] – as k goes to u. k peels u at h(10) W-h(6), converting u from V(5, 10) to V(6) as k goes to r. Then k escapes with r to h(6) converting r from E(6,10) to P(6) and then croqueting r to R(6) as k goes to position at h(6), Figure VI.34, TAC.

Figure VI.34: k makes h(6) and goes to r. k sends r from R(6) to P(8) – [CO is (r, y, u)] – as k goes to y. k sends y from P(7) to R(7) as k goes to position at h(7), Figure VI.35, 3-FIX.

Proceeding with [TAC + 3-FIX], does not involve the L&H from [STANDARD + EXPEDITE], but replaces it with a necessary rush on Peelee (transferring the risk to the peel rather than the break) from the last peeling hoop to the next one – here from h(10) to h(11). This is doable, but difficult for new peels. However, it has a real value for repeating failed peels. In this case, Peelee remains near the old peeling hoop, obviating the need for a rush.

[TAC + 3-FIX] is also a convenient way to progress to h(9)

Figure VI.35: k makes h(7) and goes to y. k sends y from R(7) to P(9) – [CO is (y, u, r)] – as k goes to u. k rushes u from h(10) to h(11) and then peels u at h(11), converting u from V(7, 10) to V(8) as k goes to r at P(8) with a roll peel. k then croquets r to R(8) as k goes to position at h(8), Figure VI.36, TAC.

Figure VI.36 k makes h(8) and goes to r. k sends r from R(8) to P(10) – [CO is (r, y, u)] – as k goes to y. k sends y from P(9) to R(9) as k goes to position at h(9), Figure VI.37, 3-FIX.

One final note: Striker could start out following [STANDARD + EXPEDITE] as per Figures VI.30-VI.33. He does the STANDARD but the peel fails as shown in Figure VI.38. In this case, k may be able to go from r to y, and make h(7) with y, skipping u altogether as shown in Figure VI.39. This would be a hybrid between the two ways of proceeding allowing k to skip the L&H of the EXPEDITE Procedure and substitute the 3-BALL Procedure instead. These are equivalent if Striker does not need to move the 3rd ball, which works here.

1-Hoop Cycles: REPEAT

With [STANDARD + EXPEDITE] and [TAC + 3-FIX], Peelee (u) remains or is returned to being Pivot at h(5) and h(7), thereby allowing another Transit-Peel to proceed. In regular T-AC this is accomplished by ignoring (i.e., not observing) CO. In COAC [STANDARD + EXPEDITE] does it with a L&H on Peelee, and [TAC + 3-FIX] does it with benign neglect. There is yet a 3rd way to proceed that is used a lot in COAC and is presented in the next panel. It employs repeated applications of the REPEAT Procedure.

Starting from Figure VI.40, the Arithmetic of CO tells us that we can progress to Figure VI.42 with [STANDARD + EXPEDITE]. Taken together, those two procedures were shown to move each ball three FS returning each ball to its original function in two hoops. Two applications of REPEAT is even simpler – It returns each ball to its original function every hoop. Thus, over two hoops, there is an equivalence between [STANDARD + EXPEDITE] and [REPEAT + REPEAT].

Figure VI.40: k makes h(5) and sends y from R(5) to R(6) – [CO is (y, u, r)] – as k goes to u. k peels u at h(10), W-h(6), converting u from V(5,10) to V(6,11) as k goes to r. k rushes r from E(6,10) to P(6) then, with a short L&H, k sends r from P(6) to P(7) as k holds for position at h(6), Figure VI.41, REPEAT.

Figure VI.41: k makes h(6) and sends y from R(6) to R(7) – [CO is (y, u, r)] – as k goes to u. k sends u to h(11) but does not attempt the peel [W-h(7)], converting u from V(6,11) to V(7,11) as k goes to r. Then k hits r and, with a short L&H, k sends r from P(7) to E(8,11) as k holds for position at h(7), Figure VI.42, REPEAT.

Figure VI.42: k makes h(7) and sends y from R(7) to V(8) – [CO is (y, u, r)] – as k goes to u. k peels u at h(11) ,W-h(8), converting u from V(7,11) to M(9,11) as k goes to r. k rushes r from E(8,11) to P(8) and then croquets r to R(8) as k goes to position at h(8), Figure VI.43, STANDARD.

Using REPEATs

Start	[REPEAT +	REPEAT]	STANDARD
(y, u, r)-s	(y, u, r)-s	(y, u, r)-s	(r, y, u)-os

VI.40 – h(5) **VI.41 – h(6)** **VI.42 – h(7)** **VI.43 – h(8)**

REPEAT would appear to be the "Panacea" Procedure because it can repeat Peelee as the Pivot-Ball facilitating a possible peel attempt every hoop. Sadly, as we will see, the geography of a croquet lawn precludes its use at most hoops. This is because the final step in the REPEAT Procedure is a L&H wherein P(i) is sent to be P(i+1), or to E(i+1), as Striker holds for position at h(i). The length and difficulty of this L&H varies with the location of the loading and holding hoops. This must be factored into the decision to use REPEAT or not, as will be discussed at length in the next chapters.

Using REPEAT in T-AC? The REPEAT Procedure is extremely useful for peeling in COAC. It is an outgrowth of CO and there being only a single possible Escape-Ball – the AFTER-Ball that needs to be sent to another escape-position after each peel attempt if single hoops and peels are to proceed. That said, REPEAT can have an application in T-AC. As described above, to go from two hoops per peel to one hoop in T-AC requires Striker to guess where to send an additional Escape-Ball. This is because the decision must be made before the peel is tried. But as long as he can L&H to the desired hoop (next or old peeling hoop) using REPEAT, Striker does not have to guess. Both options are kept alive until the result of the peel is known. Then the L&H of the escape ball can be conducted to the desired hoop. We call this an “Either-Or Peel”.

VII.. STANDARD AND DELAYED-TRIPLE-PEELS

Suppose u gets in and runs the first break of the game. He must stop after making h(9) because the COAC rules specify that the first ball of each team to make h(10) *must do so by being peeled*. Unless u wants to stop before making h(7), to begin a 4-Turn Finish (see Chapter VIII) or a 2-Turn Finish Sextuple (see Chapter IX), then u will usually choose to stop after h(9), granting r/y a lift-to-baulk. All leaves from T-AC are possible in COAC, however, as discussed in Chapter IV, the DSL may be the most efficient. The easiest way for u to set the DSL is to place r (the ball BEFORE k) at the peg and y somewhere around h(2). This chapter adopts this ball orientation and assumes that k's goal is to finish in 2-Turns with a Triple-Peel, ideally Standard, but if not, then Delayed.

Aside from hitting in, team r/y wants to make k's progress as difficult as possible. In T-AC, assuming: (i) the DSL was well set, (ii) r/y are good players, and (iii) r and y are both for h(1), then r/y is basically color blind and positionally indifferent – they do not care if they play r or y, and are hard-pressed to differentiate between lifting the peg-ball or the h(2)-ball.

It is different in COAC. First, r/y should look at the rush k has on u. If the rush is to the peg or to h(10), then it is likely that u/k are willing to pursue a 4-Turn Finish, as described in Chapter VIII. The rest of this chapter assumes a rush to h(1). Second, taking the short shot (from A-Baulk) is often the best play for a good shooter in T-AC. Yes, it gives up a possible Standard-Triple if missed, but, at the top level of play, the difference in completion rates of Standard and Delayed-Triples can be small and may not compensate for the lower hit-in rates incurred by taking the longer shot (from B-Baulk). This calculation can produce a different recommendation in COAC due to the extreme cost of progressing past h(10) and then not finishing – a lift-to-contact which is more likely to result from running a Delayed-Triple than it is from running Standard-Triple. Only time will tell if shooting or finessing is correct, but in this chapter, it is assumed that r/y takes the long shot from B-Baulk.

The next section of this chapter discusses the mechanics of a Standard-Triple. Toward that end, it assumes that r (the peg ball) lifts and shoots at u/k from B-Baulk. This gives u/k their best chance of running a Standard-Triple because k's attempt is slightly easier if r plays instead of y. Playing y is saved for the discussion later of the start of a Delayed-Triple.

The Standard-Triple

The First Two Peels

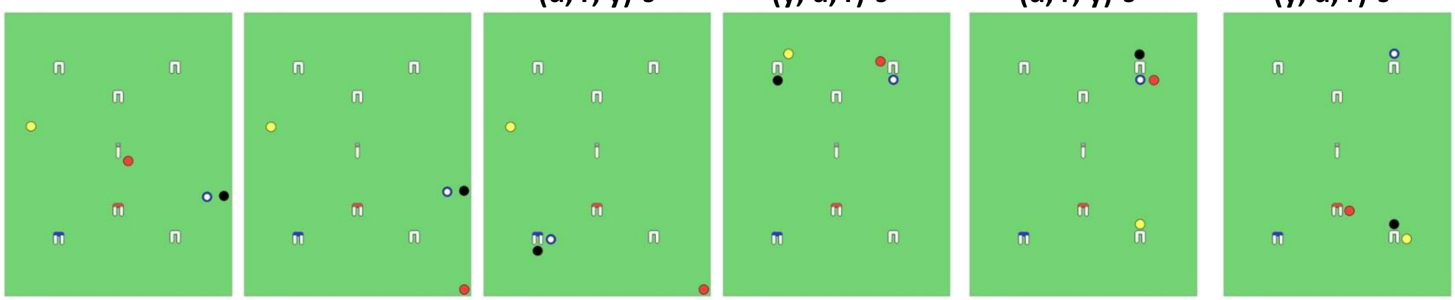
Our consideration of a Standard-Triple includes completing the h(10)-Peel the traditional way, A-h(3), but also completing it

W-h(4), and W-h(5). In all three cases, the h(11)-Peel can follow and be completed A-h(6) which, in turn, allows the h(12)-Peel to be completed W-h(8), W-h(9), W-h(10), or straight at h(12) S-h(12). Having multiple opportunities in COAC to complete the h(12)-Peel increases the probability that Striker will finish and not be forced to grant a lift-to-contact. However, the early h(12)-Peel possibilities come at a price – difficult shots early on including a wide Hogan-Roll.

The h(10) Peel A-h(3): Figure VII.1: k is for h(1) and u is for h(10). R lifts and shoots from B-Baulk and misses into c4, Figure VII.2. k has no choice but to hit u, setting the CO as (u, r, y). In fact, the simplest and best thing for k to do is to rush u to h(1), *which was facilitated by having k's rush on u directed to h(1) and not to the peg*.

From Figure VII.2: k rushes u to P(1) – [CO is (u, r, y)]. Then, with a croquet shot, k sends u from P(1) to R(1) as k goes to position at h(1), Figure VII.3, using 2-BALL. *k has only used u, but in doing so he converted r from V(0) to V(1) and y from P(1) to P(2) and is now in position to use all four balls. This is an appropriate time to plan the h(10)-Peel, hopefully A-h(3).*

DSL | **r misses to c4** | **2-BALL (u, r, y)-s** | **STANDARD (y, u, r)-s** | **EXPEDITE (u, r, y)-s** | **h(10) A-h(3) STANDARD (y, u, r)-s**



VII.1 | **VII.2** | **VII.3 – h(1)** | **VII.4 – h(2)** | **VII.5 – h(3)** | **VII.6 – h(4)**

Let's do the Arithmetic: Let RB=u. In Figure VII.3, k is for h(1) and u is R(1), thus HAVE=R. After (j=2) hoops, u wants to be R(3) to set up for the peel at h(10) A-h(3). Thus, WANT=R. In two FS, HAVE rotates from R to P→GET=P, GET+1=R and GET+2= V. WANT=GET+1, therefore, over the next 2 hoops, k needs to execute an EXPEDITE and a STANDARD, in either order. Both orders of play involve a Hogan-Roll. Shown here is the use of STANDARD and then EXPEDITE, rather than *vice versa*, because the Hogan-Roll with STANDARD executed first sends r to h(3) as Pioneer. This is easier than sending r to h(2) – as Reception – as called for if EXPEDITE is played first.

<u>Figure VII.3</u>: k makes h(1) and goes to u. k sends u from R(1) to V(2), near to h(10) – [CO is (u, r, y)] – as k goes to r. k sends r from V(1) to P(3) as k goes to y at h(2) *with a wide Hogan-Roll*. k moves y from P(2) to R(2) as k goes to position at h(2), <u>Figure VII.4</u>, STANDARD.

<u>Figure VII.4</u>: k makes h(2) and goes to y. k sends y from R(2) to P(4) – [CO is (y, u, r)] – as k goes to u. k moves u to peel position at h(10), from V(2) to R(3,10), as u goes to r. Then, with a short L&H, k moves r from P(3) to V(3) as k goes to position at h(3), <u>Figure VII.5</u>, EXPEDITE.

All shots were completed with precision – u and r are in perfect position – which will allow the h(10) peel to be attempted A-h(3).

<u>Figure VII.5</u>: k makes h(3) and goes to u. k sends u from R(3,10) to V(4), peeling u at h(10), A-h(3) – [CO is (u, r, y)] – as k goes to r, Then k sends r from V(3) to P(5) going to y. k moves y from P(4) to R(4) as k goes to position at h(4), <u>Figure VII.6</u>, STANDARD.

Completing the h(11)-Peel A-h(6) after a Successful h(10)-Peel A-h(3): The last chapter showed that a Back-Peel at h(10) completed A-h(3), as shown above in <u>Figure VII.6</u>, can be followed by a Back-Peel at h(11), completed A-h(6), using three STANDARDs. With both of these peels done, Striker is in a good position for the h(12)-Peel as discussed later in this chapter.

What if the h(10)-Peel A-h(3) Fails, when can it next be tried? Starting from <u>Figure VII.5</u>, suppose k inadvertently, or with an unfortunate hoop and roquet, hits u out of peel position after he makes h(3), as shown in <u>Figure VII.7</u>. Now what? k can stop midstream and do the Arithmetic! Clearly, he cannot now complete the h(10)-Peel W-h(4). But can he complete it at the next possible time – W-h(5)? The answer is yes. *But, in using the arithmetic, k needs to mentally go back to <u>Figure VII.5</u> and do it from there, when he was still for h(3).*

Let's do the Arithmetic: k is for h(3) with u as R(3). Let RB=u, thus HAVE=R. In a single hoop (j=1), u wants to be V(4,10), thus WANT=V. In one FS, HAVE rotates from R to V→GET=V, GET+1=P, and GET+2=R. WANT=GET, so a STANDARD will work.

<u>Peel h(10) W-h(5) after Failing A-h(3)</u>: From <u>Figure VII.5</u>, k makes h(3) and hits u past peel position, <u>Figure VII.7</u>. k repositions u for the peel, converting u from R(3) to V(4,10) – [CO is (u, r, y)] – as k goes to r. k roquets r and leaves it nearby as the Escape-Ball to h(5), converting it from V(3) to E(5,10) as k goes to y. k moves y from P(4) to R(4) as k goes to position at h(4), <u>Figure VII.8</u>, STANDARD.

Start
(u, r, y)-s

VII.5 – h(3)

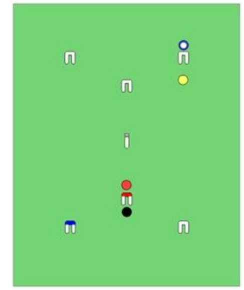
Stop Midstream!
(u, r, y)-s

VII.7

STANDARD
(y, u, r)-s

VII.8 – h(4)

STANDARD
(r, y, u)-s



VII.9 – h(5)

Figure VII.8: k makes h(4) and goes to y. k sends y as a Helper-Ball from R(4) to V(5) – [CO is (y, u, r)] – as k goes to u. k peels u at h(10), W-h(5), converting u from V(4) to M(6,10) as k goes to r. k rushes r to P(5) and then croquets it to R(5) as k goes to position at h(5), Figure VII.9, STANDARD.

The h(10)-Peel W-h(4)**:** Let's go back to h(2), this time as shown in Figures VII.10. *Here the croquet shot sending u to h(3) going to r and the wide Hogan-Roll sending r to h(10) as k went to y at h(2) were not precise.* (Compare Figure VII.4 to VII.10). *k is fearful of not getting u into position for the peel A-h(3). Is there a way to convert the peel attempt from A-h(3) into one done W-h(4)? In that case u would be the Pivot-Ball instead of the Reception-Ball. This would help because, after making h(3), k could go first to y and then uses y to obtain a rush on u that sends u to peel position (adjusts u) before the peel attempt.*

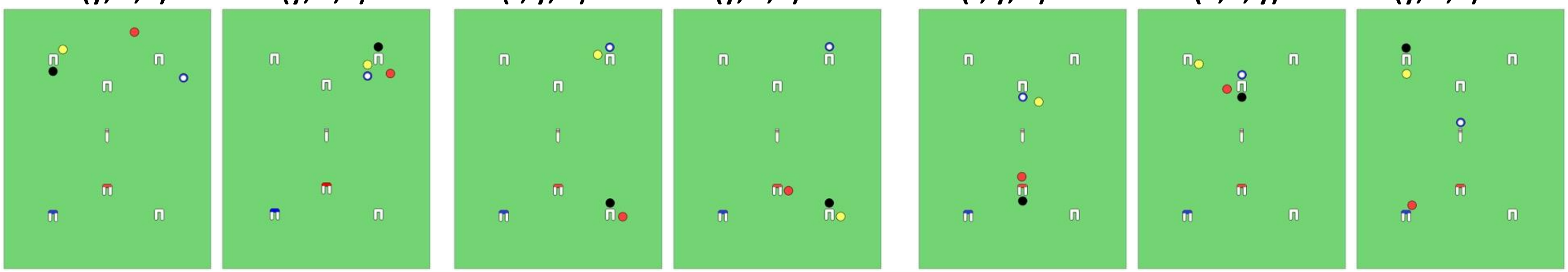
Let's do the Arithmetic: Let RB=u. k is for h(2). u is V(2), thus, HAVE=V. In one hoop, at h(3) we want u=V(3). Thus, WANT=V. j =1. In one FS, as k progresses from h(2) to h(3), HAVE rotates from V to P→GET=P, GET+1=R, and GET+2=V. WANT=GET+2, so we need to engage in an immediate REPEAT.

Figure VII.10: k makes h(2) and goes to y. k sends y from R(2) to R(3) – [CO is (y, u, r)] – as k goes to u. k moves u *toward, but not into* peel position at h(10), from V(2) to V(3,10), as u goes to r. Then, with a short L&H, k moves r from P(3) to E(4,10) as k goes to position at h(3), Figure VII.11, REPEAT.

As feared, k will not get the h(10) Peel done A-h(3). k needs to adjust u and then attempt the peel W-h(4). From Figure VII.11 *there are two ways to proceed: (i) using STANDARD as shown in* Figure VII.12 *and (ii) using REPEAT, as shown in* Figure VII.13*. The choice* *between the two is critical as it will determine when the h(11) Peel can be done. Repeat turns out to be superior but will be available only if the Arithmetic is done for the h(11)-Peel from Figure VII.11, before completing the h(10) Peel.*

Figure VII.11: **Using STANDARD:** k follows what appears to be the simplest approach – k makes h(3) and goes to y. k sends y from R(3) to V(4) as a Helper-Ball – [CO is (y, u, r)] – as k goes to u. k adjusts u and then peels u at h(10), W-h(4), converting u from V(3,10) to M(5,10) as k goes to r. k escapes with r rushing r from E(4,10) to P(4) and then croqueting it to R(4) as k goes to position at h(4), Figure VII.12, STANDARD.

Start (y, u, r)-s	REPEAT (y, u, r)-s	h(10) W-h(4) STANDARD (r, y, u)-s	REPEAT (y, u, r)-s	STANDARD (r, y, u)-s	STANDARD (u, r, y)-s	h(11) A-h(6) STANDARD (y, u, r)-s



VII.10 – h(2)	**VII.11 – h(3)**	**VII.12 – h(4)**	**VII.13 –h(4)**	**VII.14 – h(5)**	**VII.15 – h(6)**	**VII.16 – h(7)**

With the h(10) peel done, Striker finally stops to consider the h(11) Peel.

Let's do the Arithmetic: From Figure VII.12: Let RB=u. k is for h(4). u is M(5,10). Thus, HAVE=P. In two hoops (j=2) k wants to be set-up for the Back-Peel A-h(6) at h(11) as shown in Figure VII.15 where u is R(6). Thus, WANT=R. In two FS (j=2), HAVE rotates from P to V→GET=V, GET+1=P, and GET+2=R. WANT=GET+2 therefore Striker needs to execute a REPEAT and a STANDARD, in either order, or the equivalent. *Given where u is, as M(5,10), it is not practical to proceed [REPEAT +STANDARD]. And [STANDARD + REPEAT] is a tall order, difficult and not practical.*

Striker had expected to go from Figure VII.4 to Figure VII.5 which would have placed y as P(4). The h(10) peel would be done A-h(3) and followed by an easy Back-Peel at h(11) involving three STANDARDs. Striker rightfully changed strategy when u and r did not go where he wanted. He used REPEAT to get from Figure VII.10 to Figure VII.11. This intentionally placed y as R(3) to allow the h(10) peel to be done W-h(4). *But, with y at R(3), the strategy for the h(11) Peel needs to be chosen before the h(10) peel is attempted!*

Let's do the Arithmetic: From Figure VII.11: Let RB=u. k is for h(3). u is V(3,10). Thus, HAVE=V. In three hoops (j=3) k wants to be set-up for the Back-Peel A-h(6) at h(11) as shown in Figure VII.15 where u is R(6). Thus, WANT=R. In three FS (j=3), HAVE rotates from V to V→GET=V, GET+1=P, and GET+2=R. WANT=GET+2 therefore Striker needs to execute a REPEAT and two STANDARDs.

Figure VII.11: k makes h(3) and goes to y. k sends y from R(3) to R(4) – [CO is (y, u, r)] – as k goes to u. k adjusts u and then peels u at h(10), W-h(4), converting u from V(3,10) to V(4) as k goes to r. k escapes with r and does a short L&H rushing r from E(4,10) to P(4) and then croqueting it to P(5) as k goes to position at h(4), Figure VII.13, REPEAT. *By doing this immediate REPEAT u will remain pivot and can be maneuvered to h(11) after k makes h(4):*

Figure VII.13: k makes h(4) and goes to y. k sends y from R(4) to V(5) – [CO is (y, u, r)] – as k goes to u. k sends u from V(4) to P(6,11) as k goes to r. k sends r from P(5) to R(5) as k goes to position at h(5), Figure VII.14, STANDARD.

Figure VII.14: k makes h(5) and goes to r. k sends r from R(5) to V(6) – [CO is (r, y, u)] – as k goes to y. k sends y from V(5) to P(7) as k goes to u. k sends u from P(6,11) to R(6,11) as k goes to position at h(6), Figure VII.15, STANDARD.

Figure VII.15: k makes h(6) and goes to u. k peels u at h(11), A-h(6), changing it from R(6,11) to V(7) – [CO is (u, r, y)] – as k goes to r. k sends r from V(6) to P(8) as k goes to y. k sends y from P(7) to R(7). k goes to position at h(7), Figure VII.16, STANDARD.

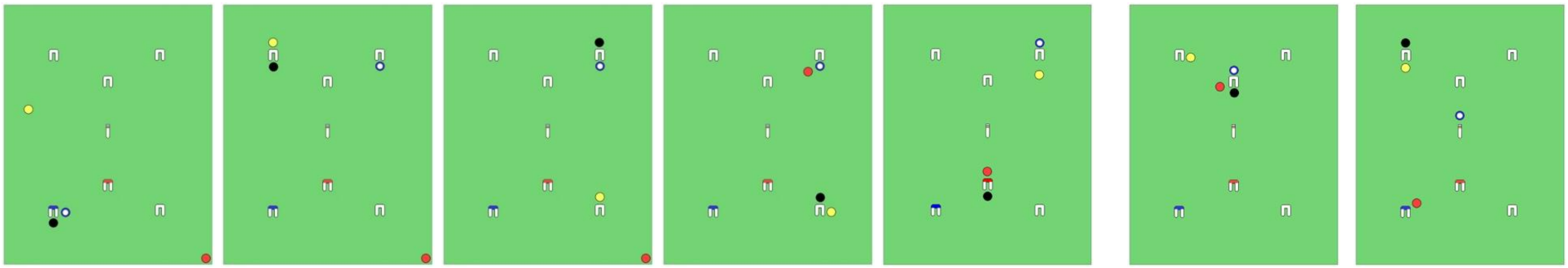
There is one other way to go from Figure VII.10 to Figure VII.15 – that is by using [TAC + 3-FIX + EXPEDITE].This provides one less adjustment on peelee but is a perfectly reasonable option.

These examples illustrate that the earlier the arithmetic is done, with proper forethought, the better the results will be! It also shows that the Arithmetic can be done for one action [say the h(11)-Peel] while another [the h(10) Peel] is still pending.

The h(10)-Peel W-h(5): Not all players are comfortable with wide Hogan-Rolls. And they need not be to run a Standard-Triple in COAC if the definition is expanded to include completing the h(10)-Peel W-h(5). Here we will not need the wide Hogan-Roll, but the shots are demanding none-the-less.

H(10) W-h(5) | h(11) A-h(6)

Start (u, r, y)-s	TAC (y, u, r)-os	3-FIX (u, r, y)-s	STANDARD (y, u, r)-s	STANDARD (r, y, u)-s	STANDARD (u, r, y)-s	STANDARD (y, u, r)-s



VII.3 – h(1) VII.17 – h(2) VII.18 – h(3) VII.19 – h(4) VII.20 – h(5) VII.21 – h(6) VII.22 – h(7)

Let's do the Arithmetic: Figure VII.3: k is in position at h(1) with u as R(1). RB=u, thus HAVE=R. In 3 hoops time (i.e., j=3) when k is in position to make h(4) k wants u to be V(4) ready to be peeled W-h(5), Figure VII.19. So, WANT=V. Mod(3:3)=0. In zero FS, HAVE rotates from R to R→GET=R, GET+1=V and GET+2=P. WANT=GET+1. Therefore, over the next three hoops Striker must execute the equivalent of an EXPEDITE and two STANDARDs. From Figure VII.3, with a STANDARD, r must be sent to P(3); with an EXPEDITE it must be sent to R(2). Neither of these are feasible from c4 without a wide Hogan-Roll. Fortunately, there is an equivalent that works because [EXPEDITE +STANDARD] = [TAC +3-FIX].

Figure VII.3: k makes h(1) and goes to u. k sends u from R(1) to P(3) – [CO is (u, r, u)] – as k goes to r. k takes-off from r, converting r from V(1) to V(2) as k goes to y. k moves y from P(2) to R(2) as k goes to position at h(2), Figure VII.17, TAC.

Figure VII.17: k makes h(2) and goes to y. k sends y from R(2) to P(4) – [CO is (y, u, r)] – as k goes to u. k sends u from P(3) to R(3) as k goes to position at h(3), Figure VII.18, 3-FIX.

Figure VII.18: k makes h(3) and goes to u. k sends u from R(3) to V(4,10), leaving u near h(10) – [CO is (u, r, y)] – as k takes-off to r in c4. k sends r from V(3) to E(5,10), as an Escape-Ball to h(5), as u goes to y. k moves y from P(4) to R(4) as k goes to position at h(4), Figure VII.19, STANDARD.

Figure VII.19: k makes h(4) and goes to y. k sends y from R(4) to V(5) (as a Helper-Ball) – [CO is (y, u, r)] – as k goes to u. k peels u at h(10), W-h(5) converting u from V(4,10) to M(6,10) as k goes to r. k rushes r from E(5,10) to P(5) and croquets it to R(5), as k goes to position at h(5), Figure VII.20, STANDARD.

If the Peel Attempt W-h(5) Succeeds can a Back-Peel A-h(6), at h(11) follow? YES!

Let's do the Arithmetic: From Figure VII.20**.** RB=u. At h(5), u is M(6,10), thus HAVE=P. At h(6) u wants to be R(6,11), thus WANT=R. In (j=1) FS, HAVE rotates from P to R→GET=R, GET+1=V, and GET+2=V. WANT=GET and so a single STANDARD works.

Figure VII.20: k makes h(5) and goes to r. k sends r from R(5) to V(6) – [CO is (r, y, u)] – as k goes to y. k sends y from V(5) to P(7), as k goes to u. k rushes u from M(6,10) to P(6) and then croquets it to R(6,11) as k goes to position at h(6), Figure VII.21, STANDARD.

Figure VII.21: k makes h(6) and goes to u. k peels u at h(11), A-h(6), converting it from R(6,11) to V(7,12) – [CO is (u, r, y)] – as k goes to r. k sends r from V(6) to P(8) as k goes to y. k sends y from P(7) to R(7), as k goes to position at h(7), Figure VII.22, STANDARD.

h(12)-Peel Opportunities

Previous sections of this chapter illustrated the completion of the h(10)-Peel A-h(3), W-h(4), or W-h(5). They also showed that if any one of these is completed, then the Back-Peel at h(11) can follow A-h(6). With the h(10) and h(11)-Peels done, it is time to turn to alternative ways to complete the h(12)-Peel and peg-out. A major reason for attempting a Standard-Triple, [i.e., complete the h(11)-Peel no later than A-h(6)] is to have the possibility of competing the h(12)-Peel before h(12)! This is desirable in T-AC, but it is more of a consideration in COAC where failure of the Straight-h(12)-Peel grants a lift-to-contact. We will consider earlier h(12)-Peel attempts from T-AC starting with W-h(8), and show that, with the notable exception of W-h(11), they are all possible in COAC and can be accomplished using repeated application of the REPEAT Procedure.

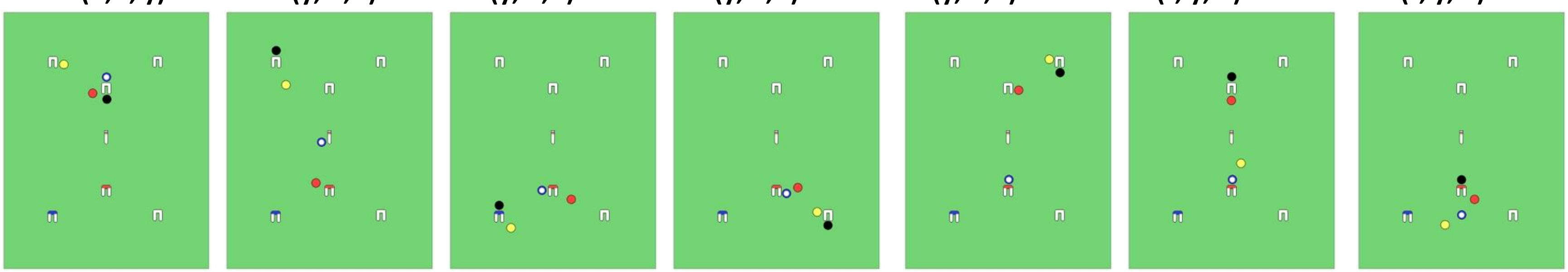
ADDED INFO #4: An Example of the Flexibility of the Procedures when the h(12) Peel is in Trouble: This note shows multiple solutions to a h(12)-Peel that initially fails W-h(10).

Consider Figure VII.23. k is in position to make h(6), u is still for h(11). k makes h(6) and goes to u. k peels u at h(11), A-h(6), converting u from R(6,11) to V(7,12) – [CO is (u, r, y)] – as k goes to r. k rushes r north and then croquets it from V(6) to E(8,12) as k goes to y. k sends y from P(7) to R(7) as k goes to position at h(7), Figure VII.24, STANDARD. k is now in a position to try the h(12)-Peel W-h(8), h(9) and h(10). We will detail the first attempt and just outline the others.

Figure VII.24: k makes h(7) and goes to y. k sends y from R(7) to R(8) – [CO is (y, u, r)] – as k goes to u. k rushes u to h(12), attempts the peel W-h(8), converting u from V(7,12) to V(8) if it succeeds, and converting it to V(8,12) if it fails (as is shown here), as k goes to r. Then with a L&H, k sends r from E(8,12) to E(9,12) if it fails (assumed here), as k goes to position at h(8), Figure VII.25, using REPEAT. *Note that the 10-yard L&H, from h(8) to E(9,12), is doable but requires practice to be reasonable.*

If the h(12)-Peel fails W-h(8), then, as k progresses from h(8) to h(9), from Figure VII.25 to VII.26, it can be attempted W-h(9). Here the L&H distance, from h(9) to E(10,12), is short (approximately 8 yards) and makes this a reasonable course of action. And, as k progresses from h(9) to h(10), from Figure VII.26 to VII.27, it can be attempted W-h(10).

	Complete h(11) W-h(7)	Attempt h(12) W-h(8)	Attempt h(12) W-h(9)	Attempt h(12) W-h(10)	**Skip Attempt** W-h(11)	Attempt h12) S-h(12)
Start	**STANDARD**	**REPEAT**	**REPEAT**	**REPEAT**	**STANDARD**	**REPEAT**
(u, r, y)-s	**(y, u, r)-s**	**(y, u, r)-s**	**(y, u, r)-s**	**(y, u, r)-s**	**(r, y, u)-s**	**(r, y, u)-s**



VII.23 – h(6) **VII.24 – h(7)** **VII.25 – h(8)** **VII.26 – h(9)** **VII.27 – h(10)** **VII.28 – h(11)** **VII.29 – h(12)**

Consider the progression from Figure VII.26 to VII.27. An attempt W-h(11) is possible, but the L&H involved is not reasonable [i.e., gaining position at h(10) while croqueting r to h(12)]. It is better for k to rush r to h(10) and then, with a short L&H, send r to P(11), [i.e., r near h(11)] while going to position at h(10). This gives up the peel opportunity W-h(11) but it keeps the break alive and is the first step in setting up for the Straight-h(12)-Peel.

From Figure VII.27 to VII.28 involves a STANDARD Procedure. It completes the set up for the Straight-h(12)-Peel which is then shown successfully executed between Figure VII.28 and VII.29. From here, k will make h(12) and go to r, then from r to y, and from y to u. k will rush u to the peg and peg out u and k.

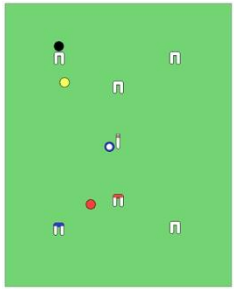
Finally, here is one other possibility. Striker reaches Figure VII.24 with the h(11)-Peel completed A-h(6) and progresses to Figure VII.25 using REPEAT with an intent to move u to peel position for a h(12)-Peel attempt W-h(9) rather than a true attempt W-h(8). Now the change. Instead of using REPEAT to continue to Figure VII.26, Striker can use TAC, sending y from R(8) to P(10) and then attempt peel W-h(9) and escape with r to h(9). The peel can succeed or fail, and Striker will continue the same way – with 3-FIX sending r from R(9) to P(11) going to y at P(10). If the peel failed, the balls are arranged nicely for a Straight-h(12) Peel (S-h12) and if it succeeded the end of the turn will be easy.

Rejoining a Break After Peeling

A series of peel attempts using REPEAT was just shown to offer multiple opportunities for completing the h(12)-Peel. In the section we will show that the h(10) and h(11)-Peels can also be serviced with REPEATs. Using multiple, consecutive REPEATs is a particularly convenient way to run a break when peels can initially fail and safely be retried. But the L&H's involved make it desirable to leave the realm of REPEATs as soon as possible. With that in mind, this section looks at how Striker can rejoin a 4-ball break after succeeding with (or giving up on) a peel. Specifically, we will consider what Striker should do relative to the h(12)-Peel.

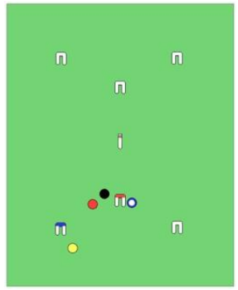
Consider Figure VII.30. k just completed the h(11)-Peel A-h(6) and is now in position to attempt the h(12)-Peel W-h(8). k starts out in position at h(7), makes h(7) and goes to y. Not knowing the result of the peel ahead of time, k begins by sending y from R(7) to R(8) – expecting the peel to fail, and then k goes to u to attempt the h(12) Peel W-h(8). Figures VII.31 – VII.34 show four relevant outcomes of the peel attempts: it Fails, it Jawses, it Trickles through, and it comes through Clean. We have been careful to stop the action immediately after the attempt where k has a rush to the south and west on r. How k uses that rush becomes our focus and is shown in column-form below in Figures VII.31 – VII.34.

Start



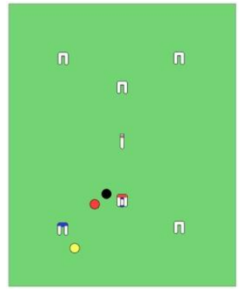
VII.30

Fails



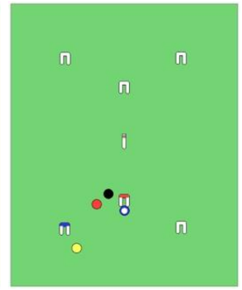
VII.31

Jaws



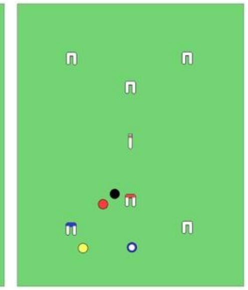
VII.32

Trickle



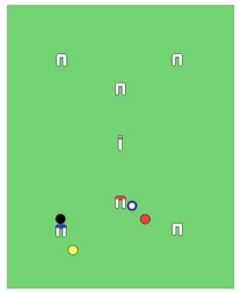
VII.33

Clean

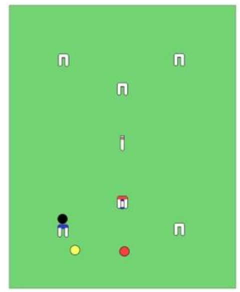


VII.34

REPEAT



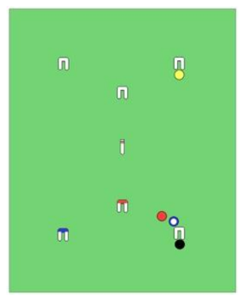
REPEAT



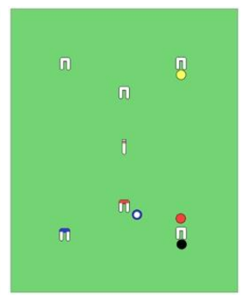
REPEAT

STANDARD

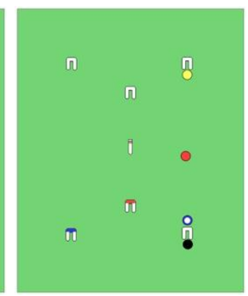
EXPEDITE



TAC



STANDARD



The Peel Fails: If the peel attempt W-h(8) fails, then k should set up for the next peel attempt – W-h(9) – by gaining position at h(8) using REPEAT, resulting in the figure that is directly below Figure VII.31 [which repeats Figure VII.25 from above]. k is set to retry the peel W-h(9). In the short L&H r was sent to E(9,12) instead of to P(9). This will facilitate the next peel attempt.

It Jawses: The good news is that k can rush-peel u hard after making h(8). Knowing this, k uses REPEAT to advance to h(8) but is able to approach h(8) with an easier L&H sending r further South as shown in the figure that is directly below Figure VII.32. Then, k can restore the sync of CO and FO and rejoin his 4-Ball break in one step – with EXPEDITE as he advances from h(8) to h(9). That is, k sends y from R(8) to P(10), u from V(8) to R(9), and with a short L&H, r is sent from P(9) to V(9), as k goes to position at h(9).

It Trickles Through: Although the peel is done, but u is not rushable to h(9) or h(10) and needs to be extricated from the h(12)-Hoop after k makes h(8). k completes h(8) with REPEAT but puts r near to h(12) as E(9,12) to make it easier to adjust u, as shown in the figure directly below Figure VII.33. A good way to proceed after making h(8) is with TAC, which will leave u as Pivot. Thus, k sends y from R(8) to P(10), u from V(8), to V(9), and rushes r to P(9) then sends it to R(9) as k goes to position at h(9).

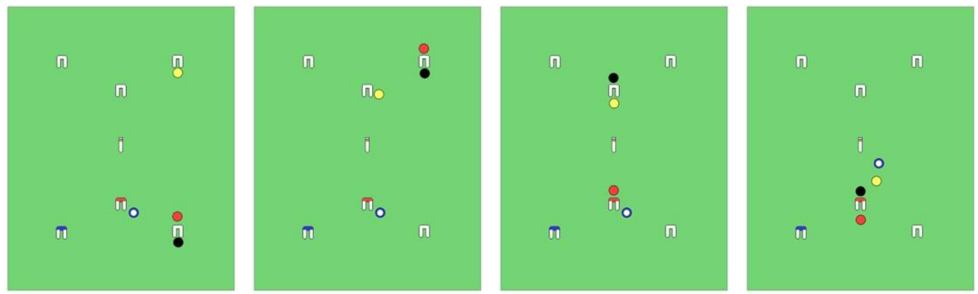
It Comes Through Clean: The peel is done and Peelee has come through cleanly – leaving plenty of room to maneuver all of the balls. Here k can complete h(8) with STANDARD instead of REPEAT by sending r to R(8) and re-designating y as V(8), as shown in the figure directly below Figure VII.34. This can be followed by another application of STANDARD that keeps CO and FO in sync and sets up for an easy finish. But this is appropriate only if u can be rushed to h(9).

Using 3-L&H before 3-FIX: In dealing with the situation where Peelee just Trickles through – Figure VII.33 – k made h(9) with TAC because it allowed k to maneuver u away from the h(12)-Hoop while maintaining u as the Pivot-Ball. This was done knowing that TAC puts CO and FO out of sync. Generally, TAC is followed with a 3-FIX to reach position at h(10) while simultaneously restoring CO and FO. But in this case, since u is conveniently near h(12), k uses 3-L&H to reach h(10), leaving CO and FO out of sync, and then 3-FIX to reach h(11) and restore sync.

Figure VII.35: k makes h(9) and goes to r. k sends r from R(9) to R(10) – [CO is (r, y, u)] – as k goes to y. Then with a short L&H, k sends y from P(10) to P(11) as k goes to position at h(10), Figure VII.36, 3-L&H. *Note that CO and FO are still out of sync.*

Figure VII.36: k makes h(10) and goes to r. k sends r from R(10) to P(12) – [CO is (r, y, u)] – as k goes to y. k sends y from P(11) to R(11) as k goes to position at h(11), Figure VII.37, 3-FIX. CO and FO are restored to sync.

TAC	3-L&H	3-FIX	STANDARD
(r, y, u)-os	(r, y, u)-os	(y, u, r)-s	(r, y, u)-s



VII.35 – h(9)	VII.36 – h(10)	VII.37 – h(11)	VII.38 – h(12)

Figure VII.37: k makes h(11) and goes to y. k sends y from R(11) to V(12) – [CO is (y, u, r)] – as k goes to u. k sends u from V(12) toward the peg, as k goes to r. k moves r from P(12) to R(12) as k goes to position at h(12), Figure VII.38, STANDARD.

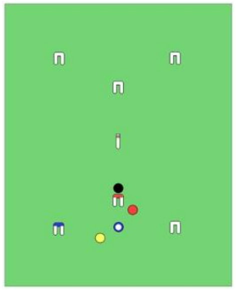
Pegging-out

If the h(12)-Peel is completed as a Straight-Peel S-h(12), Figure VII.39, then Striker must be careful to go to the AFTER-ball (r) and then to the BEFORE-ball (y) if he wants to ensure a good rush on Partner (u) to the peg for the peg-out.

If the h(12)-Peel is completed earlier than S-h(12), then Striker will need to regain his 4-ball break, as was described above. Assuming Striker is able to synchronize CO/FO by the time he reaches h(11), he will have the balls in one of the CO's shown in Figures VII.40 to VII.42. His goal is to arrange to use u as the 3rd ball after making h(12) – that is u will be the Pioneer-Ball for the 13th hoop, the Peg. The Arithmetic of CO still applies. We will do it for one example and leave the others as an exercise for the ambitious.

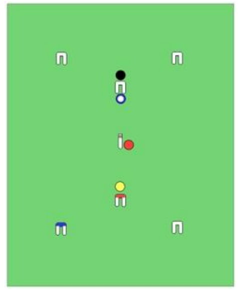
Setting-Up to Peg-Out Starting at h(11)

At h(12)
(r, y, u)-s



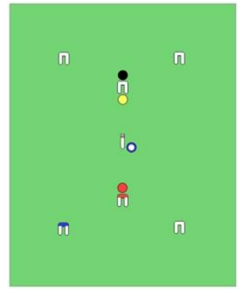
VII.39 – h(12)

EXPEDITE
(u, r, y)-s



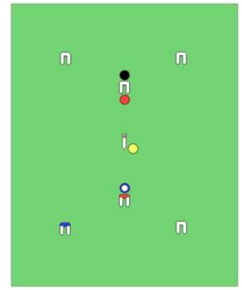
VII.40 – h(11)

STANDARD
(y, u, r)-s



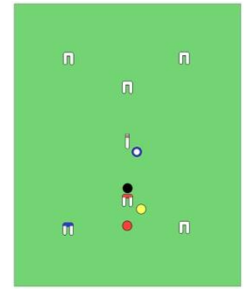
VII.41 – h(11)

REPEAT
(r, y, u)-s



VII.42 – h(11)

Peg-out
(y, r, u)-s



VII.43 – h(12)

Let's do the Arithmetic: In Figure VII.40, RB=u. k is for h(11), u is R(11). HAVE=R. In one hoop, when k is for h(12) we want u to be the 3rd ball used after h(12) is made – we want to use r to get to y to get to u to be pegged out! WANT=P. (j=1). In one FS, HAVE will rotate from R to V→GET=V, GET+1=P, and GET+2=R. WANT=GET+1, so we need an EXPEDITE.

Figure VII.40: k makes h(11) and goes to u. k sends u from R(11) to P(13=Peg) – [CO is (u, r, y)] – as k goes to r. k sends r from V(11) to R(12) as k goes to y. Then, with a short L&H, k sends y from P(12) to V(13=Peg) as k goes to position at h(12), Figure VII.43, EXPEDITE. The Peg-out proceeds peacefully from Figure VII.43.

The Delayed-Triple

The Start of a Delayed-Triple

We begin again from the DSL, Figure VII.1. This time y, the BEFORE-Ball, which was near h(2), shoots and misses into c4[40], as shown in Figure VII.44. It turns out that the initial attempts that could lead to the early completion of the h(10)-Peel A-h(3), W-h(4) and W-h(5) and then to a possible Standard-Triple – are more difficult when y plays than when r plays. We will leave the details to ADDED INFO #2 and turn the focus to the Delayed-Triple.

ADDED INFO #2: Miscellaneous Plays Early in a Triple: This note explores how play from a DSL differs when the AFTER or the BEFORE Balls are played.

A Delayed-Triple has Striker completing the h(10)-Peel W-h(6), or later. The later the peel gets done the more limited are Striker's options for the h(11) and h(12)-Peels, and the more likely it is that he will be forced to forgo the Triple-Peel and set some type of leave, either before or after making h(10) – the dividing line between granting a lift-to-baulk and a lift-to-contact.

Start	y shoots	3-BALL (r, y, u)-s	TAC (u, r, y)-os	3-FIX (r, y, u)-s	STANDARD (u, r, y)-s	STANDARD (y, u, r)-s	h(10) W-h(6) STANDARD (r, y, u)-s

VII.1	VII.44	VII.45 – h(1)	VII.46 – h(2)	VII.47 – h(3)	VII.48 – h(4)	VII.49 – h(5)	VII.50 – h(6)

[40] Jeff Soo points out that y can also shoot at r, or r can shoot at y. He explains that lifting y is better for r/y, in terms of getting an easy start, if he hits. If y hits r then he has CO on his side, that is y will go to k, to easily get a controlled rush on u to h(1). But if r hits y, then he needs to go next to u, which does not easily lead to a rush on k to h(1), which may be a borderline ball. So, the DSL (with r at the peg) is all the more attractive when you think Oppos would prefer to play r, unless r is for h(2), h(6) or h(7), in which case you lose the defensive quality of the leave. Ibid.

Figure VII.44: k has a 23-yard direct rush on u to h(1) but prefers the 13-yard rush on r to h(1) from the Peg[41]. k follows the T-AC prescription for starts when Oppo shoots and misses into c4: k roquets u. k sends u from R(0) to P(2) – [CO is (u, r, y)] – as k goes to r. k rushes r from V(0) to P(1) and then croquets it to R(1) as k goes to position at h(1), Figure VII.45, 3-Ball.

Figure VII.45: k makes h(1) and goes to r. k sends r from R(1) to P(3) – [CO is (r, y, u)] – as k goes to y in c4. k takes-off from y as V(1) and converts it to V(2) as k goes to u. k sends u from P(2) to R(2) as k goes to position at h(2), Figure VII.46, TAC. *k's options are limited. This is the best he can do.*

Figure VII.46: k makes h(2) and goes to u. k sends u from R(2) to P(4)[42] – [CO is (u, r, y)] – as k goes to r. k moves r from P(3) to R(3) as k goes to position at h(3), Figure VII.47, 3-FIX. *k now has access to all four balls. It is time to plan for the h(10)-Peel. The goal is to do it W-h(6), as is done in T-AC.*

Let's do the Arithmetic: RB=u. In Figure VII.47, k is for h(3), u is P(4), thus HAVE=P. In two hoops, when k is for h(5), u wants to be V(6,10) as shown in Figure VII.49, thus WANT=V. j=2. In two FS, HAVE rotates from P to V→GET=V, GET+1=P, and GET+2=R. WANT=GET, so only STANDARDs are necessary.

Figure VII.47: k makes h(3) and goes to r. k leaves r at h(10) converting it from R(3) to V(4) – [CO is (r, y, u)] – as k goes to y in c4. k sends y from V(3) to P(5) as k goes to u. k sends u from P(4) to R(4) as k goes to position at h(4), Figure VII.48, STANDARD.

Figure VII.48: k makes h(4) and goes to u. k rushes u from R(4) to V(5,10), *perhaps attempting an immediate peel* – [CO is (u, r, y)] – as k goes to r. k adjusts r from V(4) to E(6,10) going back to y. k moves y from P(5) to R(5), going to position at h(5), Figure VII.49, STANDARD.

Figure VII.49: k makes h(5) and goes to y. k sends y from R(5) to V(6), as a Helper-Ball – [CO is (y, u, r)] – as k goes to u. k converts u from V(5,10) to M(7,10) as k successfully peels u at h(10) W-h(6), going to r. Then k rushes r from E(6,10) to P(6) and croquets it to R(6) as k goes to position at h(6), Figure VII.50, STANDARD.

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[41] If k is willing to risk the added difficulty of rushing u to h(1), then k can send u to P(3,10) and possibly get a peel chance at h(10) A-h(3).

[42] If k prioritizes the peel at h(10) (see Chapter VIII, 4-Turn Finishes), k could send u from R(2) to R(3,10) and hope to peel h(10) A-h(3), but it would make rebuilding the break quite difficult. k would attempt the peel and rush r to y in c4. Leaving r West of c4 as R(4), k could rush y to P(4) and send it to P(5) with a short L&H, using LIMITED. A 3-FIX after h(4) would get k back in CO for a chance to finish the Standard-Triple.

REPEATed Attempts at the h(10)-Peel

In the example above, the h(10)-Peel was completed W-h(6), which is the classic time for it. But what if it does not happen? In the discussion of the Standard-Triple, we showed that using REPEATs from h(8) to h(12) allows multiple attempts at the h(12)-Peel. In the same way, and with much more urgency, it is possible to use REPEATs to arrange a series of attempts at the h(10)-Peel. Figures VII.52, VII.53, and VII.54 show failed peels at h(10) W-h(6), W-h(7), and W-h(8). As will be discussed, continuous applications of REPEAT preclude an attempt W-h(9). But, as will also be discussed, skipping the somewhat difficult attempt W-h(8) can set the stage for a much more reasonable attempt W-h(9)[43]. And there is always the possibility of an attempt S-h(10).

Figure VII.51: **Failure W-h(6):** k makes h(5) and goes to y. k sends y from R(5) to R(6) – [CO is (y, u, r)] – as k goes to u. k attempts the h(10)-Peel W-h(6), it fails, converting u from V(5,10) to V(6,10) as k goes to r. Then k rushes r past h(6) and, with a short L&H, k sends r to E(7,10) as k goes to position at h(6). Figure VII.52, REPEAT.

Figure VII.52: **Failure W-h(7):** k makes h(6) and goes to y. k sends y from R(6) to R(7) – [CO is (y, u, r)] – as k goes to u. k attempts the h(10)-Peel W-h(7), it fails, converting u from V(6,10) to V(7,10) as k goes to r. Then k rushes r past h(7) and, with a long L&H, k sends r to E(8,10) as k goes to position at h(7). Figure VII.53, REPEAT.

h(10) Peel Tries:	W-h(6)	W-h(7)	W-h(8)	**NO ATTEMPT W-h(9)**	S-h(10)	W-h(8)	W-h(9)
Start	**REPEAT**	**REPEAT**	**TAC**	**3-L&H**	**EXPEDITE**	**REPEAT***	**STANDARD***
(y, u, r)-s	**(y, u, r)-s**	**(y, u, r)-s**	**(r, y, u)-os**	**(y, u, r)-s**	**(y, u, r)-s**	**(y, u, r)-s**	**(y, u, r)-s**

VII.51 – h(5)	**VII.52 – h(6)**	**VII.53 – h(7)**	**VII.54 – h(8)**	**VII.55 – h(9)**	**VII.56 – h(10)**	**VII.57 – h(8)**	**VII.58 – h(9)**

[43] How, or if, Striker should proceed with a 2-Turn Finish is taken up later.

Figure VII.53: **Failure W-h(8):** k makes h(7) and goes to y. k sends y from R(7) to P(9) – [CO is (y, u, r)] – as k goes to u. k attempts the h(10)-Peel W-h(8), it fails, converting u from V(7,10) to V(8,10) as k goes to r. Then, k rushes r from E(8,10) to P(8) and croquets it to R(8) as k goes to position at h(8). Figure VII.54, TAC.

For the h(10)-Peel attempt W-h(8), k used TAC and not REPEAT to progress from Figure VII.53 to VII.54. k would have preferred to use a REPEAT to create a possible peel attempt W-h(9) as shown in Figure VII.57, which would have led to a possible attempt W-h(9) as shown in Figure VII.58, using STANDARD. However, the geography of a croquet lawn makes the extremely long L&H, sending r to h(10) while gaining hoop-running position at h(8), impractical. k gives up the attempt W-h(9).

Figure VII.54: **No Attempt h(9):** k makes h(8) and goes to r. k sends r from R(8) to R(9) – [CO is (r, y, u)] – as k goes to y. Then, with a short L&H, k croquets y from P(9) to V(9) as k goes to position at h(9), Figure VII.55, 3-L&H.

With the failure W-h(8), 3-L&H creates the CO coming out of h(9) as (r, y, u) which orders the balls in the traditional way to maximize the probability of success with the h(10)-Peel S-h(10).

Figure VII.55: **Attempt S-h(10):** k makes h(9) and goes to r. k sends r from R(9) to P(11) – [CO is (r, y, u)] – as k goes to y. k sends y from V(9) to R(10) as k goes to u. k attempts the h(10)-Peel W-h(10), converting u from P(10) to V(10) as k goes to position at h(10). Figure VI.56, EXPEDITE.

This figure shows a successful peel, and the start of a Straight-Triple wherein k rushes u to h(11) from h(10). It is also possible to organize the balls so that k uses r to bombard u toward h(11) to shorten the adjustment on peelee.

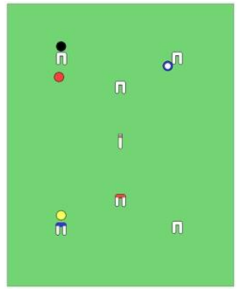
If the S-h(10) peel attempt jawses, k can try a half jump to continue, or he can try a scatter peel which would complete the h(10)-Peel but end his turn. If all else fails and the h(10)-Peel is not completed, then k cannot make h(10) and his turn will end.

The Outlier – the h(10)-Peel W-h(9): As outlined above, an attempt W-h(9) would not occur during a series of REPEATed attempts of the h(10)-Peel starting W-h(6). However, it is possible to plan to complete the peel W-h(7) and get off the lawn setting up for a 4-Turn Finish, giving Oppo a shot, but not a lift. But if this attempt fails, then the next attempt will be W-h(9), as shown in the panel of figures below.

Start
(y, u, r)-s

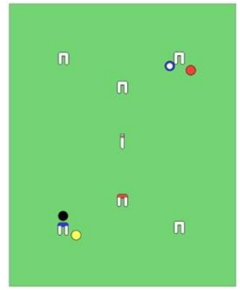
VII.59 – h(6)

TAC
(r, y, u)-s



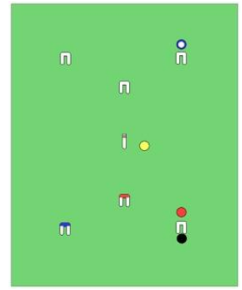
VII.60– h(7)

3-FIX
(y, u, r)-s



VII.61 – h(8)

<u>h(10) W-h(9)</u>
STANDARD
(r, y, u)-s



VII.62 – h(9)

<u>Figure VII.59</u>: k makes h(6) and goes to y. This time k sends y to P(8) – [CO is (y, u, r)] – as k goes to u. k attempts the h(10)-Peel W-h(7), it fails, converting u from V(6,10) to V(7), as k goes to r. k escapes with r to h(7), rushing r from E(7,10) to P(7) and then croqueting it to R(7) as k goes to position at h(7), <u>Figure VII.60</u>, TAC.

<u>Figure VII.60</u>: k makes h(7) and goes to r. k sends r from R(7) to E(9,10) – [CO is (r, y, u)] – as k goes to y. k sends y from P(8) to R(8) as k goes to position at h(8), <u>Figure VII.61</u>, 3-FIX. Note that u is converted to V(8,10), and is once again the Pivot.

<u>Figure VII.61</u>: k makes h(8) and goes to y. k sends y from R(8) to V(9) at the peg, clearing the way for a rush from h(10) to h(9) – [CO is (y, u, r)] – as k goes to u. k peels u from V(8,10) to P(10), W-h(9), as k goes to r. k rushes r from E(9,10) to P(9), and then croquets it to R(9), <u>Figure VII.62</u>, STANDARD.

If the peel succeeds, Striker will usually continue with the intention of winning the game by completing a Straight-Double, which will require a short L&H to send u toward peeling position at P(11) while holding position at h(10). If the peel fails, the balls are conveniently organized for the attempt S-h(10) as part of a Straight-Triple.

If the h(10)-Peel fails S-h(10) then, under the rules of COAC, Striker's turn will end.

The Peel at h(11) and h(12)

Once the h(10)-Peel is done, Striker can start the remaining two peels. In T-AC, if the h(10) Peel is completed W-h(6), W-h(7) or W-h(8) the classic way to proceed is with a Delayed-Double, peeling h(11) W-h(10) and peeling h(12) S-h(12). If the h(10) Peel is done W-h(9), then the h(11) Peel can be attempted W-h(10) and if that fails Striker will start a Straight-Double. Early attempts at the h(11) are possible [W-h(7), W-h(8), or W-h(9)] and can be followed by earlier h(12) attempts. But these activities are not the norm. In COAC Delayed and Straight-Doubles are the mainstays. Early attempts are possible but pose significant risk and are not recommended. We will now consider how Striker should proceed depending upon when he completes the h(10) peel.

When the h(10)-Peel is Completed W-h(6)

Let's do the Arithmetic: The Delayed Double: Consider Figure VII.63. We begin by showing that it is beneficial to do the calculations for the h(11)-Peel even before the h(10)-Peel is completed. Assuming that it will get done, we can ask what Procedures are needed to make the h(11)-Peel W-h(10). Let RB=u. k is at h(5), u is V(5,10), thus HAVE=V. In (j=4) hoops when k is at h(9) we want u to be V(9,11) ready to be peeled W-h(10), thus WANT=V. In Mod(3:4)=1 FS, HAVE will rotate from V to P→GET=P, GET+1=R, GET+2=V. WANT=GET+2, so k will need to execute one REPEAT and three STANDARDs.

Figure VII.63: k makes h(5) and goes to y. k sends y from R(5) to R(6) – [CO is (y, u, r)] – as k goes to u. k peels u at h(10), W-h(6), converting u from V(5,10) to V(6) as k goes to r. Then with a short L&H, k sends r from E(6,10) to P(7) – *getting r to P(7) simplifies this process* – as k goes to position at h(6), Figure VII.64, REPEAT. *With the peel done (or at least jawsed), we can proceed with confidence for three hoops with STANDARDs to complete the h(11)-Peel*[44]*.*

Figure VII.64: k makes h(6) and goes to y. k sends y from R(6) to V(7) – [CO is (y, u, r)] – as k goes to u. k sends u from V(6) to P(8) as k goes to r. k moves r from P(7) to R(7) as k goes to position at h(7), Figure VII.65, STANDARD. *This is routine, but it illustrates how a break can be rejoined using STANDARD when the peel was completed with REPEAT. Peelee was Pivot and is sent to Pioneer.*

Figure VII.65: k makes h(7) and goes to r. k sends r from R(7) to V(8) [*Escape-Ball Position]* – [CO is (r, y, u)] – as k goes to y. k sends y from V(7) to P(9) as k goes to u. k moves u from P(8) to R(8) as k goes to position at h(8), Figure VII.66, STANDARD.

[44] If the h(10)-Peel had failed, then k would need to refigure – the early Arithmetic done above would no longer be valid.

	<u>h(10)-W-h(6)</u>				<u>h(11) W-h(10)</u>		<u>h(12) S-h(12)</u>
Start	**REPEAT**	**STANDARD**	**STANDARD**	**STANDARD**	**REPEAT**	**STANDARD**	**REPEAT**
(y, u, r)-s	**(y, u, r)-s**	**(r, y, u)-s**	**(u, r, y)-s**	**(y, u, r)-s**	**(y, u, r)-s**	**(r, y, u)-s**	**(r, y, u)-s**

VII.63– h(5) **VII.64 – h(6)** **VII.65 – h(7)** **VII.66 – h(8)** **VII.67 – h(9)** **VII.68 – h(10)** **VII.69 – h(11)** **VII.70 – h(12)**

<u>Figure VII.66</u>: k makes h(8) and goes to u. k rushes u from R(8) to V(9,11), *perhaps attempting an immediate peel* – [CO is (u, r, y)] – as k goes to r. k adjusts r converting it from V(8) to E(10,11) as k goes to y. k sends y from P(9) to R(9) as k goes to position at h(9), <u>Figure VII.67</u>, STANDARD.

We are ready to attempt the h(11)-Peel W-h(10) and are thinking about the h(12)-Peel. We would like it to be a Straight-Peel S-h(12) and not a Transit-Peel W-h(12). We can do the calculations for the h(12)-Peel before the h(11)-Peel is finished.

Let's do the Arithmetic: In <u>Figure VII.67</u>, RB=u. k is for h(9), u is V(9,11). Thus, HAVE=V. In two hoops, when k is for h(11) we want u to be P(12), thus WANT=P. j=2. In two FS, HAVE rotates from V to R→GET=R, GET+1=V, GET+2=P. WANT=GET+2 so k needs to execute a REPEAT and a STANDARD in the next two hoops, in either order but chooses to do REPEAT first.

<u>Figure VII.67</u>: k makes h(9) and goes to y, k sends y from R(9) to R(10) – [CO is (y, u, r)] – as k goes to u. k peels u at h(11), W-h(10), converting u from V(10,11) to V(11) as k goes to r. Then, after rushing r past h(10), k sends r back to P(11), with a short L&H, while k holds for position at h(10), <u>Figure VII.68</u>, REPEAT.

<u>Figure VII.68</u>: k makes h(10) and goes to y. k sends y from R(10) to V(11) – [CO is (y, u, r)] – as k goes to u. k sends u from V(11) to P(12,12) as k goes to r. k sends r from P(11) to R(11) as k goes to position at h(11), <u>Figure VII.69</u>, STANDARD.

It is time to plan the peg-out as we do the h(12)-Peel. **Let's do the Arithmetic:** In Figure VII.69, RB=u. k is for h(11), u is P(12,12). Thus, HAVE=P. In one hoop when k is for h(12) we want u to be P(13=Peg), thus WANT=P. j=1. In one FS, HAVE rotates from P to R→GET=R, GET+1=V, GET+2=P. WANT=GET+2 so k needs to execute a REPEAT.

Figure VII.69: k makes h(11) and goes to r. k sends r from R(11) to R(12) – [CO is (r, y, u)] – as k goes to y. k sends y from V(11) to V(12) as k goes to u. Then k peels u, S-h(12), as k holds for position at h(12), Figure VII.70, REPEAT. *The "L&H" involved in the REPEAT is designed to allow k to make h(12) and then roquet r, leading to an easy peg-out –with k rushing y to u and u to the peg.*

Earlier Attempts: The h(11) peel can be attempted as early as W-h(7) or more realistically W-h(8). But in COAC the earliest the h(12) peel can be completed is W-h(10) – and involves long escape rushes and allows only one adjustment on peelee and, thus, is not recommended. Therefore, expediting the h(11)-Peel is of very limited benefit and probably not worth the risk.

When the h(10)-Peel is Completed W-h(7)

In Figure VII.79, k has just failed with the h(10)-Peel W-h(6). The goal is still to finish during this 2nd Turn. There are three reasonable ways to proceed that can be identified with three of Wylie's favored humors: Aggressive, Precision, and Canny.

Aggressive Play: In this scenario Striker seeks to do the h(11)-Peel W-h(10). A long L&H makes or breaks this strategy.

Let's do the Arithmetic: k is for h(7). Let RB=u, u is V(7), thus HAVE=V. In two hoops, when k is for h(9), we want u to be V(9,11), thus WANT=V. In 2 FS (j=2), HAVE will rotate from V to R→GET=R, GET+1=V, GET+2=P. WANT=GET+1 therefore an EXPEDITE and a STANDARD are needed.

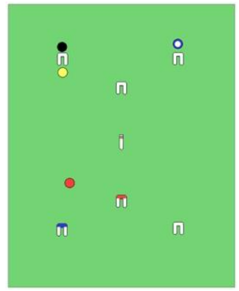
Figure VII.79: k makes h(6) and goes to y. k sends y from R(6) to R(7) – [CO is (y, u, r)] – as k goes to u. k peels u at h(10), W-h(7), converting u from V(6,10) to V(7) as k goes to r. After rushing r from E(7,10) to north of h(7), k sends r to M(8,"Peg"), with a long L&H (*the goal is to send r as far as possible toward P(8), and at least as far as the peg)*, as k holds position at h(7), Figure VII.80, REPEAT.

Figure VII.80: k makes h(7) and goes to y. k sends y from R(7) to P(9) – [CO is (y, u, r)] – as k goes to u. k sends u from V(7) to R(8) as k goes to r. With a short L&H or a take-off, k moves r from M(8,Peg) to V(8) as k goes to position at h(8), Figure VII.81, EXPEDITE.

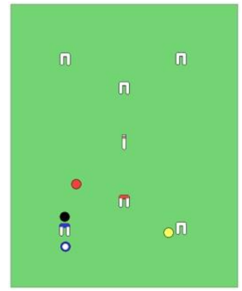
Aggressive Play

Start	h(10) W-h(7) REPEAT	EXPEDITE	Delayed-Double STANDARD
(y, u, r)-s	**(y, u, r)-s**	**(u, r, y)-s**	**(y, u, r)-s**

VII.79 – h(6)



VII.80 – h(7)



VII.81 – h(8)

VII.82 – h(9)

The key shot is getting u to R(8) and then roqueting r. r can be left behind and k can approach h(8) with a take-off that counts as a simple L&H. k does not need a rush on u or r. It would be nice, but not necessary as long as k can hit a powerful 2/3 roll sending u to reception going to r. As long as the take-off from r to position at h(8) is successful, then k's turn proceeds.

Figure VII.81: k makes h(8) and goes to u. k sends u from R(8) to V(9,11) – [CO is (u, r, y)] – as k goes to r. k sends r from V(8) to E(10,11) as k goes to y. k moves y from P(9) to R(9) as k goes to position at h(9), Figure VII.82, STANDARD. *A Delayed-Double is set.*

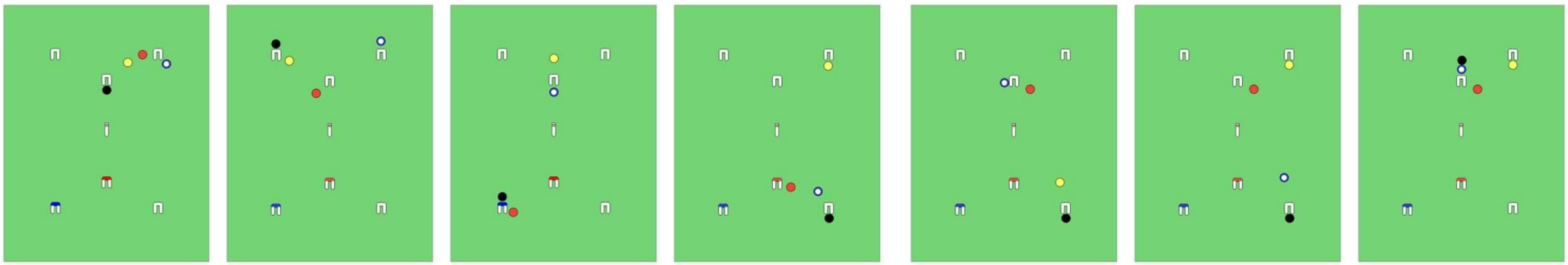
Precision Play: This time k wants to attempt the h(11)-Peel as early as possible, W-h(8), using rushes instead of L&Hs.

Figure VII.79: k makes h(6) and goes to y. k sends y from R(6) to R(7) – [CO is (y, u, r)] – as k goes to u. k peels u at h(10), W-h(7), converting u from V(6,10) to V(7,11) as k goes to r. Then k rushes r from E(7,10) to P(7) and, with a short L&H, k croquets it to E(8,11) while holding position at h(7), Figure VII.83, REPEAT.

Figure VII.83: k makes h(7) and goes to y. *The goal is to get a rush on u even if that means taking off from y!* k sends y from R(7) to V(8), as a Helper-Ball – [CO is (y, u, r)] – as k gains a rush on u. k rushes u to peel position and attempts the peel converting u from V(7,11) to M(9,11) as k gains a rush on r. *The rush on r is critical and k needs to be prepared to sacrifice the peel to get it.* k rushes r from E(8,11) to P(8) and then croquets it to R(8) as k goes to position at h(8), Figure VII.84, STANDARD. *If all goes as planned, then the h(11)-Peel will have been completed W-h(8). The world is perfect if u progressed far enough through h(11) to be rushed to h(9) …*

Precision Play

	Peels at h(10) and h(11) Succeed			h(10)-Peel Succeeds, h(11) Fails		
	h(10) W-h(7)	h(11) W-h(8)				
Start	**REPEAT**	**STANDARD**	**STANDARD**	**3-BALL**	**STANDARD**	**In Progress!**
(y, u, r)-s	**(y, u, r)-s**	**(r, y, u)-s**	**(y, u, r)-s**	**(y, u, r)-s**	**(u, r, y)-s**	**(u, r, y)-s**



VII.79 – h(6)	**VII.83 – h(7)**	**VII.84 – h(8)**	**VII.85 – h(9)**	**VII.86 – h(9)**	**VII.87 – h(9)**	**VII.88 – h(10)**

Figure VII.84: k makes h(8) and goes to r. k sends r from R(8) to V(9), *preferably in an escape-ball position at h(12)!* – [CO is (r, y, u)] – as k goes to y. k sends y from V(8) to P(10) as k gains a rush on u. k rushes u from M(9,11) to P(9) and then croquets it to R(9) as k goes to position at h(9), Figure VII.85, STANDARD. *k is in a position to try the h(12) Peel A-h(9), W-h(11) and S-h(12).*

If u is jawsed or is peeled but cannot be rushed to h(9) then k has three options: (i) he can abandon the Triple and set a leave; (ii) he can use r to get to y and then rush y to h(9), 3-BALL; (iii) he can use r to get to y, and bombard y onto u, promoting u into a rushable position and simultaneously gaining a rush on u to h(9). If he is lucky with the rush on r after h(8), then the bombard could even be played using r while going to y.

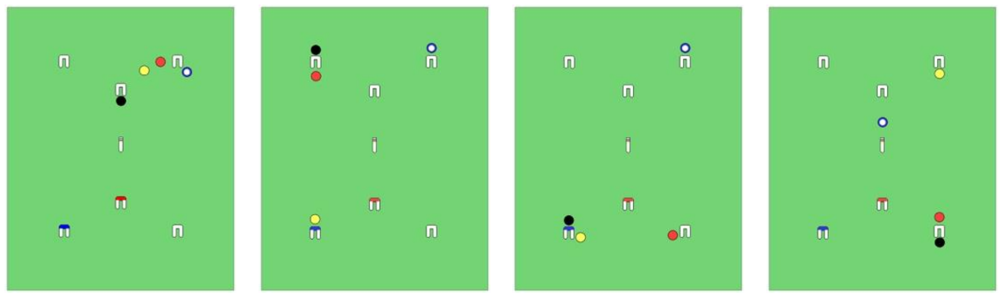
It is possible that the h(11)-Peel fails. Here Striker has three choices: (i) he can abandon the Triple and set a leave, (ii) he can use r to get to y to make h(9) as shown in Figure VII.86. If this works, then Striker is back in a Delayed-Double. (iii) Striker can use r to get to y, y to reach u, and then rush u to h(9), as shown in Figure VII.87. After making h(9), k can rush u from R(9) to h(11) and "take a look" as shown in Figure VII.88, labelled “In Progress”. If the rush was a good one, and u is in peel position, then k can continue the Delayed-Double. If not, then k can attempt the Straight-Double or set a leave with the CO (u, r, y).

Canny Play: This final strategy attempts the h(11)-Peel W-h(9). It is low risk, but also has a low probability of completing the Triple without needing a Straight-Double. The distinguishing feature of this strategy occurs before k completes the h(10)-Peel and relates to where y, the BEFORE-Ball, is sent just before the peel is attempted W-h(7).

Canny Play

h(10) W-h(7) — h(11) W-h(9)

Start (y, u, r)-s | **TAC (r, y, u)-os** | **3-FIX (y, u, r)-s** | **TAC (r, y, u)-s**



VII.79 – h(6) | **VII.89 – h(7)** | **VII.90 – h(8)** | **VII.91 – h(9)**

Figure VII.79: k makes h(6) and goes to y. k sends y from R(6) to P(8) – [CO is (y, u, r)] – as k goes to u. k peels u at h(10), W-h(7), converting u from V(6,10) to V(7) as k goes to r. Then, k rushes r from E(7,10) to P(7) and then croquets it to R(7), as k goes to position at h(7), Figure VII.89, TAC. *If the h(10)-Peel is successful W-h(7), then positioning y as P(8), as suggested here, allows one attempt at the h(11)-Peel W-h(9), with only one adjustment on peelee before continuing with a Straight-Double.*

Figure VII.89: k makes h(7) and goes to r. k sends r from R(7) to P(9) – [CO is (r, y, u)] – as k goes to y. k sends y from P(8) to R(8) as k goes to position at h(8), Figure VII.90, 3-FIX. u is converted from V(7) to V(8) in the process.

Figure VII.90: k makes h(8) and goes to y. k rushes y from R(8) towards c3 and croquets it to P(10) – [CO is (y, u, r)] – as k goes to u.

k rushes u from V(8) to h(11) and can attempt the roll-peel W-h(9) going to r. k sends r from P(9) to R(9) as k goes to position at h(9), Figure VII.91, TAC. *If this peel succeeds, then one more application of 3-FIX sets-up for the h(12)-Peel S-h(12). If the peels fails, then k can attempt a Straight-Double.*

When the h(10)-Peel is Completed W-h(8)

Earlier failures of the h(10)-Peel W-h(6) or W-h(7), or delaying activities like sextuples, etc., can cause Striker not to complete, or not to even attempt, the h(10)-Peel until W-h(8). Even here Striker has a chance to finish with something that “resembles” a Delayed-Double. Otherwise, Striker can run a Straight-Double.

Figure VII.92: k makes h(7) and goes to y. k sends y from R(7) to P(9) – [CO is (y, u, r)] – as k goes to u. k peels u at h(10), W-h(8), converting u from V(7,10) to V(8) while going to r. k escapes to h(8) by rushing r from E(8,10) to P(8) and then croqueting it to R(8), as k goes to position at h(8), Figure VII.93, TAC.

h(10) W-h(8)

Start
(y, u, r)-s

VII.92 – h(7)

TAC
(r, y, u)-os

VII.93 – h(8)

3-FIX
(y, u, r)-s

VII.94 – h(9)

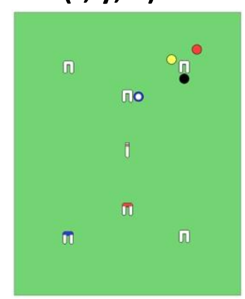
h(11) W-h(10)
Finish Delayed-Double

REPEAT
(y, u, r)-s

VII.95 – h(10)

h(11)-Peel Fails
Start Straight-Double

STANDARD
(r, y, u)-s



VII.96 – h(10)

Figure VII.93: k makes h(8) and goes to r. k sends r from R(8) to E(10,11) – [CO is (r, y, u)] – as k goes to y. k converts y from P(9) to R(9) as k goes to position at h(9), Figure VII.94, 3-FIX.

Figure VII.94: k makes h(9) and goes to y. k sends y from R(9) to R(10) – [CO is (y, u, r)] – while getting the all-important rush on u from h(10) to peel position at h(11) as V(9,11). k attempts to peel u through h(11), W-h(10), while getting a rush on r from E(10,11) to P(10). If the peel succeeds, Striker sends r back to P(11), with a short L&H, while holding position at h(10), Figure VII.95, REPEAT. If the peel fails, Striker croquets r to R(10) which converts y to V(10) and u to P(11) using STANDARD, Figure VII.96. *This switch allows k to hit both Oppo Balls before attempting the straight Double-Peel, starting S-h(11).*

If the h(10) Peel Fails W-h(8)

Figure VII.97 repeats Figure VII.93 from above except that the h(10)-Peel attempt W-h(8) has failed. k's only real option is to forge on, attempting the h(10)-Peel S-h(10**)**: Following this strategy will result in k attempting a Straight-Triple.

Start (r, y, u)-os | **3-L&H (r, y, u)-s** | **r/y to play lift-to-contact**

VII.97 – h(7) | **VII.98 – h(8)** | **VII.99 – h(9)**

Figure VII.97: k makes h(8) and goes to r. k sends r from R(8) to R(9) – [CO is (r, y, u)] – as k goes to y. Then, with a short L&H, k sends y from P(9) to V(10) as k goes to position at h(9), Figure VII.98, 3-L&H. *Going to r first after making h(9) sets the stage for a Straight-Triple by allowing it to be completed S-h(10) instead of W-h(10).*

We will not show the completion of a Straight-Triple but will note that it can proceed as it does in T-AC in one of two ways: (i) with Striker rushing u from h(10) to h(11), or (ii) with Striker or bombarding u toward h(11) with r and then going to y to gain a rush on u to h(11). If the h(11)-Peel or the h(12)-Peel fails, Striker should go to the peg and set a contact-leave, perhaps as in Figure VII.99.

If only a S-h(10) peel is Available

Finally, if u/k find itself in this predicament of only having an S-h(10) peel available, then the best option is to complete the peel, continue onward to the peg to put points on the board and apply pressure to r/y while granting them a lift-to-contact. The less attractive alternative would be to give up on the S-h(10) peel, quickly engineer a leave after h(9) and stop the turn with clips on h(10) and h(10) – arguably the “clips of death” in COAC, as neither ball will be able to make progress without an immediate peel.

Looking Ahead

Croquet – whether T-AC or COAC – is ultimately about getting both your balls to the peg and pegging out to win. There is more than one way to do this, of course. In the next chapter we will look at some options available to Striker in cases where he completes the h(10) peel, perhaps early in the break and decides to forgo the TP – instead opting for a 4-Turn Finish. On the surface this may not seem like an attractive option, and may not be at all to very strong players; however, we present it as an alternative, particularly for those players who are not confident or consistent with Straight-Doubles.

VIII.. 4-TURN FINISHES

In T-AC, a 2-Turn, Triple-Peel Finish can evolve into a 3-Turn, No-Peel Finish by granting Oppos an extra lift-to-baulk. In COAC, the initial h(10)-Peel simply must be done (!), but the h(11) and h(12) peels are optional. They can be peeled in the same turn – a 2-Turn, Triple-Peel Finish, which was the topic of the previous chapter. But getting a break started and peeling is more difficult in COAC which may lead the Striker to play the first break with the easiest ball, regardless of clips [e.g., playing the h(1) ball rather than a ball for h(4)]. There are other possibilities that involve more than two turns but need not involve peels other than the original h(10)-Peel. These are grouped together under the name "4-Turn" Finishes and discussed in this chapter.

Better players may find some of the plays in the section contradictory, i.e., Striker playing some very difficult turns to organize a peel on Partner at h(10) only to get the peel done and then give up on the break and set a leave instead. That said, these are valid strategies worth being aware of. One interesting result is that the actions of Oppos can encourage a Striker that starts with a 4-Turn, Single-Peel Finish in mind to return to a Triple-Peel Finish if all goes well.

This chapter has two sections. In both, Striker "runs 9" and gives Oppos a lift-to-baulk. Oppos miss and Striker decides to attempt a 4-Turn Finish using the 2nd turn to complete the h(10)-Peel, the 3rd to progress the front ball to the peg, and the 4th to finish with the back ball. The sections differ in when the h(10)-peel is accomplished:

(i) Peeling h(10) Early: We start with three instances where Striker (k) is progressing, or could progress in a peeling turn, with a Delayed-Triple-Peel but, decides to convert to a 4-Turn Finish, giving Oppos two extra shots, but no lift.

(ii) Peeling h(10) Later: Next we consider situations where the completion of the h(10)-Peel has been delayed for whatever reason. Striker converts to a 4-Turn Finish and grants Oppos a second lift-to-baulk as the first of their two extra shots.

In both cases we have adopted a different orientation for the rush in the DSL. Consider Figure VIII.1. This is a DSL where k has a cut-rush on u to h(10) instead of a rush to h(1) that was proposed earlier. It is carefully set such that r/y does not have a double from B-Baulk. Also, the diagonal is flatter than usual, with y positioned further to the Southeast. It is r/y to play[45].

[45] There are other leaves that work as well: For instance, in Figure VIII.1, instead of k having the rush on u, u could have the rush on k. Additionally, the diagonal could be reversed with u and k in the northwest with one having the rush on the other (again, both rushes can work).

ADDED INFO #4: An Alternative DSL with a Reverse Rush: This note presents a DSL leave wherein u, for h(10), is in c4. k, for h(1), is one foot north of u – a Reverse Rush. r is at the peg, and y is near h(2). Depending on what r/y do, there can be cannons that lead to 2-Turn Finishes by k, or bombards that lead to 4-Turn Finishes by u.

PEELING h(10) EARLY – BEFORE MAKING h(7)

The Play of r/y — The result for u/k

Modified DSL | **Peel-To-Leave** | **r at y** | **y at r** | **r at u/k** | **y at u/k** | **rush for u** | **rush for k**

VIII.1 | **VIII.2** | **VIII.3** | **VIII.4** | **VIII.5** | **VIII.6** | **VIII.7** | **VIII.8**

Peeling h(10) Before Making h(1): The earliest Striker (k) can complete the h(10)-Peel after the initial miss by Oppos from Figure VIII.1 is before making h(1). While not shown, If r or y shoot and miss to c4 then it is conceivable that k can rush u to h(10), complete the peel and give u a rush to h(11). But r/y have better plays:

If y shoots at u/k from A-Baulk and misses, then k can give up the 4-Turn Finish and start a Standard-Triple. If y shoots to anywhere else, then k can start a Delayed-Triple as was outlined in Chapter VII or proceed with his original 4-Turn plan.

If r shoots and misses, then no matter where r goes, k should be able to maneuver the balls to what we call the Peel-To-Leave shown in Figure VIII.2[46]. Getting the balls to this position puts r/y in a bind if they miss:

[46] The most difficult play for k occurs if r shoots from B-Baulk and misses into c4. In that case, k rushes u to h(10), takes off to r, croquets r toward c2 going to y, croquets y toward h(1) and goes back to u. This series of shots is facilitated by the position of y ("flatter" than usual) in Figure VIII.1.

1. If r shoots at y – as shown in Figure VIII.3, then k can start a Triple-Peel by sending u toward h(2) and going to r, etc.

   Here, at the cost of one shot, k converts a 2-Turn Delayed-Triple into a 3-Turn Standard-Triple.

2. If y shoots at r – as shown in Figure VIII.4, then k rushes u to peel position and peels u going to r. This possibility illustrates the importance of the position of r in Figure VIII.2 – it gives k access to r after the peel – *k peels u going to r*. Then, k sends r south of h(2) going to y; finally, k sends y toward h(4) and goes back to u, as shown in Figures VIII.7. Here u has a rush on k to h(11), or k can organize the balls as shown in Figure VIII.8, where k has a rush on u to r at h(2).

   Instead of setting a leave, k can peel u going to r as before, but then try to gain a rush on y to h(1) and continue with a Triple-Peel attempt, with the first leg, the h(10)-Peel, already completed.

3. If r shoots at u/k – as shown in Figure VIII.5, then k peels u gently, such that k can turn around and roquet r. This may mean jawsing u. k could then send r toward c2 going to y . *It is a big shot, but if played well gives k a Standard-Triple*.

   Alternatively, k may choose to take-off back to near u, and lay a rush (or may be able to finish a jawsed-peel with a scatter shot that also provides the desired rush to h(11).

4. If y shoots at u/k – as shown in Figure VIII.6, then k peels u going to r, adjusts r going back to y, sends y away and goes back to u. If y is sufficiently far away from u, then simply returning to u is an option.

If the Peel Fails: One feature of this strategy is that, whether the peel succeeds or fails, the positions of the balls are virtually the same as they were in Figure VIII.2, the starting position for this maneuver. Therefore, if the peel fails, k can start the process over.

Which Ball Should be Set-up to Play, u or k? After a successful peel, k can give u the rush to h(11), as shown in Figure VIII.7, or take it himself to h(2), as shown in Figure VIII.8. Generally, it seems a better option to leave the rush for k if possible, as k is now no longer under the constraint of requiring a h(10) peel, and as a result is free to be able to play a break to the peg. Additionally, u scoring more points for itself while k is still for h(1) can leave it vulnerable to being pegged out by r/y. The choice can be made based on how far u comes through h(10) and on the likelihood that k can lag or shoot to position to give u a rush to h(11) or himself a rush to h(2). If u is near to the north boundary, then k can shoot out east of u creating a rush for himself to h(2). But if u is barely through h(10), then k needs to lag to wherever he is going.

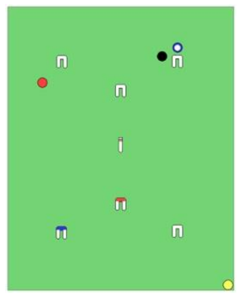
u/k Completing their 3rd and 4th Turns: In Figure VIII.9, k is for h(1) and has just peeled u at h(10) and left a rush for u to h(11).

If r shoots to u or k and misses, then k can reasonably play and has the chance at finishing with a Standard-Double. If r shoots at y and misses, then u can make h(11) with k, and h(12) with y. u has the best CO of the balls (AFTER, BEFORE, and PARTNER) to set a leave for k and should be able to get off the lawn, perhaps setting the leave shown in Figure VIII.13.

Leave for u

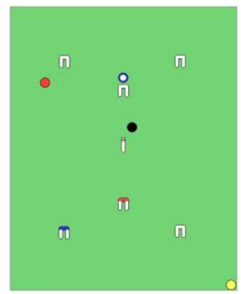
VIII.9

y shoots to c4 (k, y, r)-s



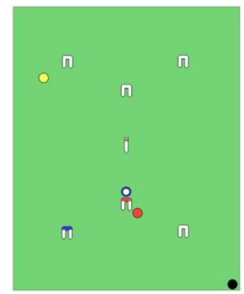
VIII.10

2-BALL (r, y, u)-s



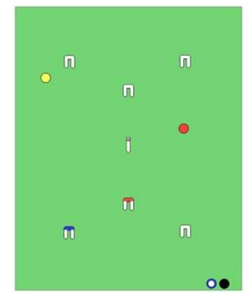
VIII.11 – h(11)

STANDARD



VIII.12 – h(12)

Leave for k



VIII.13

y shooting at r gives u an easy start of a turn to make h(11) and h(12); and y shooting at u/k gives k a chance to start a Standard-Double. These were discussed above. A more difficult play for u occurs if y finesses into c4, as shown in Figure VIII.10. u should rush k to h(11), Figure VIII.11 and then make h(11). Ideally u would have a rush on k to y and then the ability to rush y to r and then r to h(12), Figure VIII.12. u then makes h(12) and sets a leave for k, Figure VIII.13. If these plays do not come off as planned, then u can set a new leave after h(11). u may also be able to go to r after h(11) and then make h(12) with k.

Peeling h(10) A-h(3) If BEFORE (y) is in c4

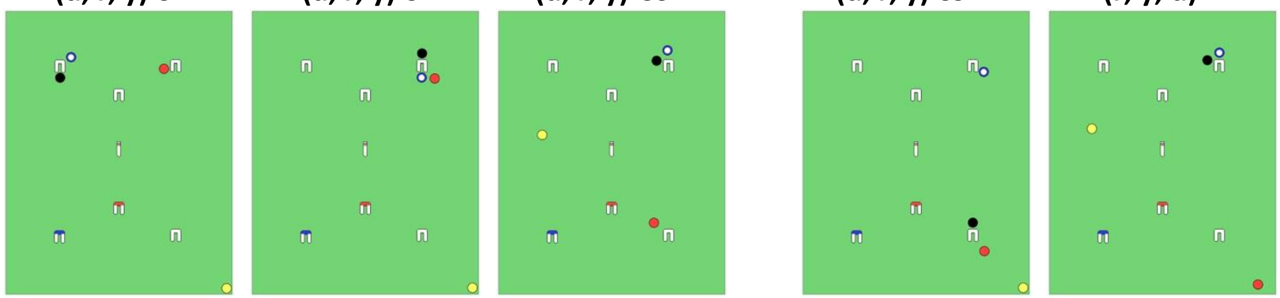
Chapter VII described the start of a Delayed-Triple when y shoots and misses into c4. k eventually progressing to h(2), as shown in Figure VII.46, repeated below. The next step would be to send u to h(4). But this position can also be the start of a 4-Turn Finish.

Figure VII.46: k makes h(2) and goes to u. k rushes and croquets u to peel position at h(10) converting it from R(2) to R(3) – [CO is (u, r, y)] – as k goes to r. Then with a short L&H, k sends r from P(3) to V(3) as k holds for position at h(3), Figure VIII.14, 3-L&H.

Figure VIII.14: **If the Peel Succeeds:** k makes h(3) and goes to u. k peels u at h(10), A-h(3) – [CO is (u, r, y)] – as k goes to r. If the peel succeeds, then k sets a leave. k rushes r toward h(4) as k goes to y. k sends y toward h(2) and then returns to u, giving u a rush to h(11), Figure VIII.15. *The mechanics of this peel attempt is the same as the attempt A-h(3) in a Standard -Triple – now as a 3-ball peel.* Note: if the Peel succeeds, then k may now fancy its chances to rush r near to y (leaving r as R(4), rush y to near h(4) and approach with a small L&H [sending y to P(5)], and suddenly k has a Standard-Triple (not shown).

Figure VIII.14: **If the Peel Fails:** k makes h(3) and goes to u. k attempts to peel u at h(10), A-h(3) – [CO is (u, r, y)] – as k goes to r. This time the peel fails. k rushes r to h(4), converting it from V(4) to P(4) and then croquets it to R(4), Figure VIII.16, 3-BALL.

Start (u, r, y)-s | **3-L&H (u, r, y)-s** | **Peel h(10) A-h(3) (u, r, y)-os** | **3-BALL (u, r, y)-ss** | **Peel h(10) S-h(5) (r, y, u)**



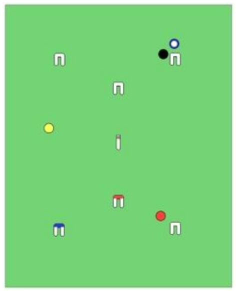
VII.46 – h(2) | **VIII.14 – h(1)** | **VIII.15 – h(2)** | **VIII.16 – h(3)** | **VIII.17 – h(11)**

Figure VIII.16: **Retrying the Peel:** k makes h(4) and goes to r. k rushes r to the south boundary – [CO is (r, y, u)] – and then gets a rush on y to the north. k rushes y and then croquets it to the west gaining a rush on u to peel position. k rushes u and then peels it at h(10) S-h(5), and then shoots to a position giving u a rush to h(11), Figure VIII.17.

u/k Completing their 3rd and 4th Turns: Consider Figure VIII.18. k is for h(4) after peeling u at h(10) A-h(3). If k's lag back to u gives u a rush to h(11), then u will have an easy time of it. The most challenging play for u occurs if r shoots at y but misses toward c2, as shown in Figure VIII.19. While u could make h(11) with k, we show u sending k to h(12) and making h(11) with y. This allows u to incorporate r back into the break after making h(11), as shown in Figure VIII.20.

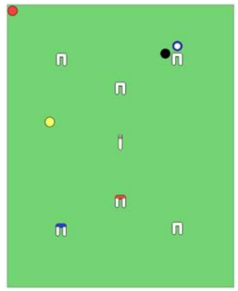
From Figure VIII.20 to Figure VIII.21 shows u using the REPEAT Procedure, sending y to reception at h(12), taking off to r and sending it to Pivot at h(12), and finally, with a small L&H, positioning k to be the 3rd ball used after h(12). This bit of legerdemain allows u to make h(12) and go first to y, next to r and finally to k to set the leave shown Figure VIII.22. With a few good shots it is possible to engineer a cross-wire leave at h(4) in this scenario. Regardless, k should have a relatively easy finish after a miss from r/y.

Leave for u



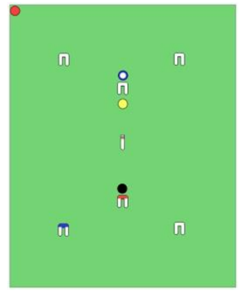
VIII.18

r shoots



VIII.19

u to h(11)

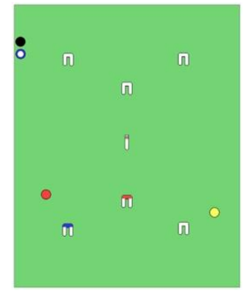


VIII.20 – h(11)

u to h(12)

VIII.21– h(12)

leave for k



VIII.22

Peeling h(10) A-h(3) If AFTER (r) is in c4

In Chapter VII we showed that if r lifts and shoots into c4 then k can attempt a Standard-Triple with the h(10)-Peel attempted W-h(5) without involving a Hogan-Roll. We see no reason to give up this opportunity. If it fails then, as outlined below, k can still arrange for a 4-Turn Finish without giving a lift-to-baulk. Therefore, we do not recommend peeling h(10) A-h(3) when AFTER (r) is in c4.

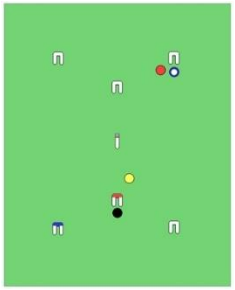
4-Turn Finish After Peeling h(10) W-h(6)

Consider Figure VIII.23. It is a position taken from a Delayed-Triple. If k can complete the h(10)-Peel W-h(6), then he can make h(6), abandon the Triple, and set up for a 4-Turn Finish, giving r/y an extra shot, but not a lift. This is true regardless of the type of leave that k wants to set because h(7) has not been made. Conveniently however, h(6), k's final hoop, and h(11), u's first hoop, coincide allowing k an opportunity for an easy cross-wire.

Figure VIII.23: k makes h(5) and goes to y. k sends y from R(5) to a position that can be either R(6) or V(6), as will be determined by the result of the peel – [CO is (y, u, r)] – as k goes to u. k attempts the h(10)-Peel W-h(6). If the peel fails, then k will employ the REPEAT Procedure using y as R(6) and attempt the h(10)-Peel W-h(7), as discussed below. If the peel succeeds, then k can rush r from E(10,6) to P(6) and croquet it to R(6) – using STANDARD, Figure VIII.24.

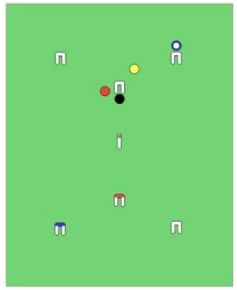
h(10) W-h(6) – Setting A Cross-Wire[47]

Start
(y, u, r)-s



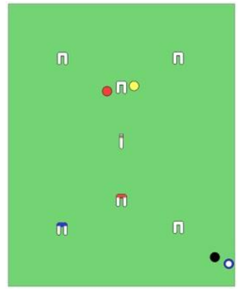
VIII.23 – h(5)

STANDARD
(r, y, u)-s



VIII.24 – h(6)

STANDARD
Cross-Wire



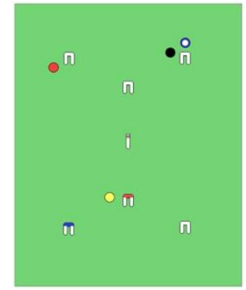
VIII.25 – h(11)

W-h(7) – Avoiding a Lift

Peel Fails W-h(6)
(y, u, r)-s

VIII.26 – h(6)

Peel done W-h(7)
OSL



VIII.27

Figure VIII.24: After the successful peel, k makes h(6) and goes to r. k adjusts r from R(6) to his final position in a Cross-Wire – [CO is (r, y, u)] – as k goes to y. k adjusts y from V(6) to the second position in the Cross-Wire as k goes to u. k rushes u to the east boundary, south of h(4), and gives u a rush to h(12), Figure VIII.25, STANDARD.

4-Turn Finish After Peeling h(10) W-h(7) but not Thereafter Making h(7)

Assuming the h(10)-Peel W-h(6), fails, Striker will be at Figure VIII.26. k has an interesting possibility that can allow the peel to be completed W-h(7) but still not trigger a lift-to-baulk. Striker makes h(6) and goes to y. Striker sends y from R(6) toward P(8) – [CO is (y, u, r)] – as k goes to u. k repositions u and attempts the peel at h(10) W-h(7), which is shown to be successful. k gains a rush on r. With the peel done, there is no need to complete the escape with r to h(7)! Rather, k can send r to a position that is away from u and away from y, and then go back to u, giving u a rush on k to h(11), as shown in Figure VIII.27.

[47] This cross-wire was David Bent's idea.

k ends his turn giving r/y a shot, but not a lift[48]. The positioning of y is crucial to making this happen and must be done before the result of the peel is known. Putting y south and west of the peg, is convenient if the peel succeeds – u takes over and is for h(11) with y as a Pioneer-Ball for h(12). It is also useful as P(8) if the peel fails because it facilitates another h(10)-Peel attempt W-h(9).

PEELING h(10) LATER – AFTER MAKING h(7)

We now move on to situations where the h(10)-Peel is completed but Striker is forced to make h(7) in the process, giving Oppos a Lift-to-Baulk. Figures VIII.28-VIII.30 shows the h(10)-Peel completed W-h(7) – W-h(9). Assuming k makes h(7) this turn, this leave is set giving r/y a lift-to-baulk. A DSL would be nice but may not be practical to set depending on how many hoops remain for k to organize the leave. Therefore, the most effective leave available may be the OSL shown in Figure VIII.31. In this case, as explained in the next section, the OSL is set such that u has a rush on k that is directed to y. And u/k are set up near to c4 so that u/k can retrieve an r/y ball that misses into c4.

Setting-up for a 4-Turn Finish with the h(10)-Peel Completed, with h(7) made

W-h(7)
(r, y, u)-s

VIII.28 – h(7)

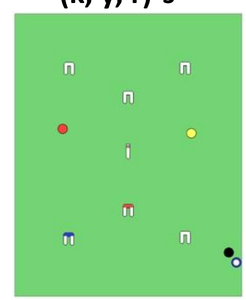
W-h(8)
(r, y, u)-s

VIII.29 – h(8)

W-h(9)
(r, y, u)-s

VIII.30 – h(9)

OSL
(k, y, r)-s



VIII.31

[48] This strategy must be used carefully. It requires k to lag back to u which can be problematic. And to be successful r must be sufficiently far away from u/k to make the leave effective.

Setting the Final Rush to be on Partner: After a successful peel, it is valuable for Striker (k) to position the AFTER-Ball (r) to be used as the Reception-Ball at his final hoop. k makes the hoop and goes first to r – [CO is (r, y, u)] – then to y, and finally gets off the lawn with PARTNER (u). Done in this order, there is no need to "lag-back" to Partner, as was the case in earlier examples when the BEFORE-Ball or PARTNER was used as the Reception-Ball at the last hoop. If this CO is not feasible, then k (or u) can reset r/y before having u play. This gives r/y another shot but may make the final two turns easier for u/k.

Finishing After Giving a Lift-To-Baulk When k is for h(10)

Once k has peeled u at h(10), the outline of the strategy for a 4-Turn Finish is basically the same no matter what hoop k is for: k needs to set a leave so that u can make h(11) and h(12) and then set a leave for k to finish. Then k needs to finish! The most delicate situation is when k is for h(10). Here k completes the h(10)-Peel W-h(9), as shown in Figure VIII.30 and then makes h(9) and sets an OSL, Figure VIII.31, with u/k set up near to c4.

u/k has finally completed the required h(10)-Peel and await the outcome of the shot by r/y. If they shoot and miss, then u will play knowing u/k are in a precarious position. u's goal is to make h(11) and h(12) and set a leave for k, so k can finish. This leave must be set carefully because k will start his turn for h(10). k has no room for error, or the ability to reset a leave after making a hoop, as he might have had starting for h(8) or h(9), because making h(10) grants a lift-to-contact. u's play is dictated by the action of r/y.

If r Plays: The most difficult case is when r finesses into c2, as shown in Figure VIII.32.

Figure VIII.32: u rushes k north of y – [CO is (k, y, r)] – and then croquets k to h(12) holding a rush on y to the northwest. u rushes y to h(11) and croquets it to R(11) as u goes to position at h(11), Figure VIII.33, 3-BALL.

Figure VIII.33: u makes h(11) and goes to y. u rushes y from R(11) to R(12) – [CO is (y, r, k)] – and then takes-off from y to r. u rolls with r from c2, converting r from V(11) to V(12) as u goes to k. Then with a short L&H, u sends k from P(12) to a position that it can be used 3rd after making h(12), as u goes to position at h(12), Figure VIII.34, REPEAT.

Figure VIII.34: u makes h(12) and sets a leave for k – going first to y, then to r and finally to k with one possibility being the leave shown in Figure VIII.35. *Here k has a rush on u to h(10) with AFTER (r) at h(10) and BEFORE (y) between h(1) and h(2).*

If y Plays: The most difficult case for u/k is when y finesses, this time into c3, as shown in Figure VIII.36.

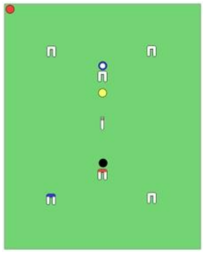
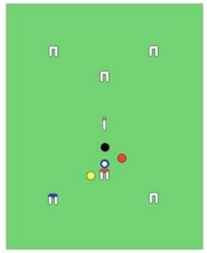
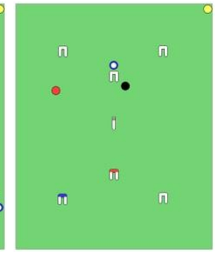
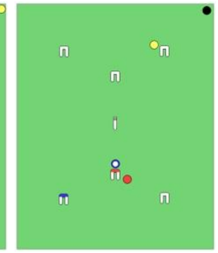
Start r Finesses	3-BALL (y, r, k)-s	REPEAT (y, r, k)-s	Leave for k	y Finesses	2-BALL (k, y, r)-s	STANDARD (r, k, y)-s	Leave for k
							
VIII.32	**VIII.33 – h(11)**	**VIII.34 – h(12)**	**VIII.35**	**VIII.36**	**VIII.37 – h(11)**	**VIII.38 – h(12)**	**VIII.39**

Figure VIII.36: u rushes k to h(11), croquets it to R(11) as u goes to position at h(11), Figure VIII.37, 2-BALL.

Figure VIII.37: u makes h(11) and goes to k – [CO is (y, r, k). u needs to rush k to y in c3, and does so, converting k from R(11) to V(12), as u gets a rush on y (with a take-off). u rushes y to r and sends y towards h(10), converting it from V(11) to P(13), while u gets a rush on r. u rushes r from M(12) to P(12) and then croquets it to R(12), Figure VIII.38, STANDARD. *If k is unable to get the rush on y to r then u has the option of not making h(12) and resetting instead – leaving k near c3, rolling y, going to r, adjusting r and then returning to k, obtaining a rush to h(12). r/y get another shot but that may be the price of being able to set a leave from which k can finish after u makes h(12).*

Figure VIII.38: u makes h(12) and goes to r. u now wants to set a leave. If u gets a good rush to h(10) he can try for a cross-wire and roll away to c4 with k. Otherwise, u can leave r at h(12) – [CO is (r, y, u)] – and go to k. u hits k and, if u likes the positions of r/y, then u can just roll u/k to the west boundary and give k a rush on u to c1, Figure VIII.39. *If u does not like the positions of r and y, then u can send k away and reposition y or leave k in c3 and send y away before returning to k.*

From Figure VIII.39, k should be able to finish no matter which ball r/y plays. The leave counts on k having a rush on u to c1 that could be cut to the South of r. If that rush cannot be engineered, then k or u may need to reset the leave (giving r/y another shot), as k cannot afford to make h(10) and then not finish as that will give r/y a lift-to-contact.

CHAPTER IX.. SEXTUPLES

If you are comfortable with break play, then start going for triples.
If you are comfortable with triples, then go for a couple of sextuples…

I now know that the 'Hogan-Roll' holds few problems for me
and I'd always take it on to set up the sextuple.

Reg Bamford, "*A View from the Top*", Beyond Expert Croquet Tactics, pages 3 and 4.

The sextuple can be thought of as the marriage of two Triples – the First: h(7), h(8), and h(9), to the Second: h(10), h(11) and h(12). Chapter VII showed that in COAC the Second can be run as a Standard-Triple when Striker completes the h(10)-Peel W-h(5) or earlier, and how it can be run as a Delayed-Triple if the h(10) Peel is completed W-h(6) or later. This chapter turns to the First-Triple starting from the Standard SxP Leave and then the Delayed SxP Leave. We show that neither starting point allows for a Standard-Second-Triple, but both can lead to a Delayed-Second-Triple. In particular, from a Standard SxP leave, the First-Triple can join the Second completing the h(10)-Peel as early as W-h(6), but more likely will join by completing it W-h(7) or even W-h(8), and that from a Delayed SxP Leave the two can join as early as completing the h(10)-Peel W-h(7), but more likely will join by completing it W-h(8) or even W-h(9).

STANDARD SEXTUPLE

Figure IX.1 presents a Standard SxP leave. u ran the first break, completed 6 hoops, cross-wired r/y at h(1), and jawsed in h(7) after positioning k with a rush-peel on u. Chapter VII showed that k's path to the Second Triple-Peel was slightly easier if, from a DSL, r (the AFTER-Ball) shot from B-Baulk and missed into c4 than it was if y took the same shot and missed. From a SxP leave, the situation is reversed, it is easier for k to proceed if y shoots from the cross-wire than if r shoots.

y shooting (and missing) is analyzed first, and then attention turns to r. The two possibilities are shown to converge when k is for h(3) if k is comfortable with Hogan-like rolls from the north boundary to h(1).

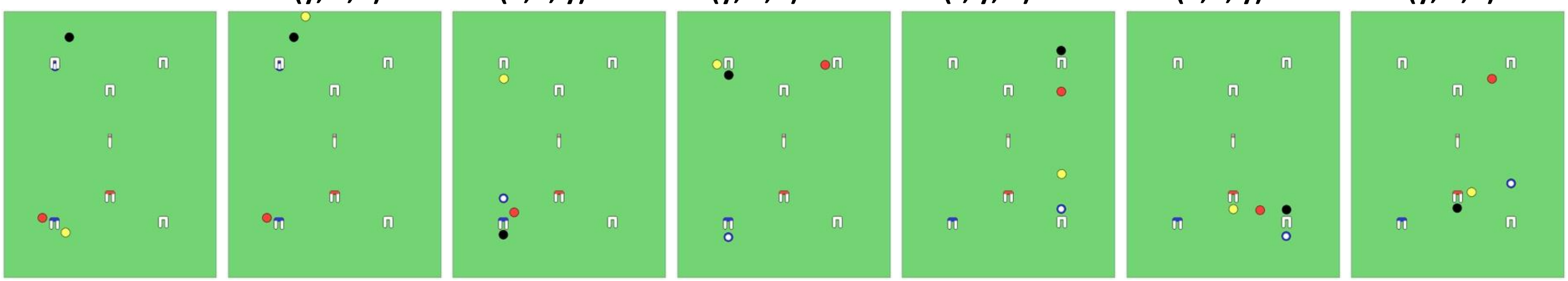
Figure IX.1: **y Shoots and Misses**, Figure IX.2.

Figure IX.2: k roquets y and sends y from R(0) to P(2) – [CO is (y, u, r)] – while k holds a rush on u. k rush-peels u hard at h(7) W-h(1), sending u from V(0,7) towards h(1). k then croquets u to R(1,8) as k goes to r. k sends r from P(1) to V(1) as k goes to position at h(1), Figure IX.3, EXPEDITE.

Figure IX.3: k makes h(1) and goes to u. k roquets and peels u at h(8) A-h(1), converting u from R(1) to V(2,9) – [CO is (u, r, y)] – as k goes to r. k sends r from V(1) to P(3) as k goes to y. k sends y from P(2) to R(2) as k goes to position at h(2), Figure IX.4, STANDARD.

Proceeding if y shoots and misses

		h(7) W-h(1)	h(8) A-h(1)			h(9) A-h(4)
Standard SxP Start	**y Misses (y, u, r)-s**	**EXPEDITE (u, r, y)-s**	**STANDARD (y, u, r)-s**	**STANDARD (r, y, u)-s**	**STANDARD (u, r, y)-s**	**STANDARD (y, u, r)-s**



IX.1	**IX.2**	**IX.3 – h(1)**	**IX.4 – h(2)**	**IX.5 – h(3)**	**IX.6 – h(4)**	**IX.7 – h(5)**

Figure IX.4: k makes h(2) and goes to y. k sends y from R(2) to V(3) – [CO is (y, u, r)] – as k goes to u, *which is still near h(8)*. k sends u from V(2) to P(4,9) as k goes to r. k sends r from P(3) to R(3) as k goes to position at h(3), Figure IX.5, STANDARD.

Figure IX.5: k makes h(3) and goes to r. k sends r from R(3) to V(4) – [CO is (r, y, u)] – as k goes to y. k sends y from V(3) to P(5) as k goes to u. k sends u from P(4,9) to R(4,9) as k goes to position at h(4), Figure IX.6, STANDARD.

Figure IX.6: k makes h(4) and goes to u. k peels u at h(9) hard A-h(4), converting u from R(4) to V(5,10) – [CO is (u, r, y)] – as k goes to r. k sends r from V(4) to E(6,10) as k goes to y. k sends y from P(5) to R(5) as k goes to position at h(5), Figure IX.7, STANDARD.

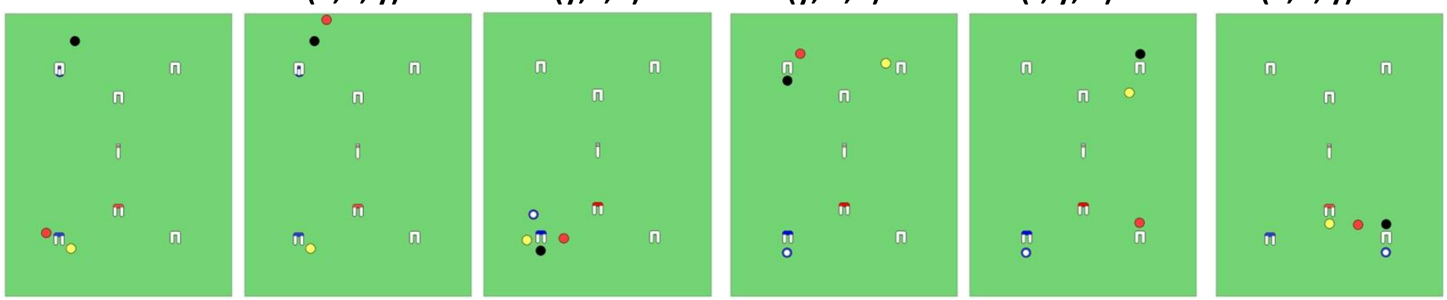
The Marriage of the Triples if the h(9)-Peel is Completed A-h(4)

Figure IX.7 should look familiar. It is *almost the same* as Figure VII.59 from the Delayed-Triple in Chapter VII, where k is ready to try the h(10)-Peel W-h(6). There is however a significant difference. Back in Figure VII.59, Peelee (u) is in close proximity to h(10), while in Figure IX.7 u is shown just after the h(9)-Peel, assuming it has not progressed all the way to h(10) – *a realistic possibility*. It is possible to complete the h(10)-Peel W-h(6) from this position, but it is more likely that the h(10)-Peel will not be completed until one hoop later W-h(7), with k needing the extra hoop to position u for the peel.

Figure IX.1(repeated): **r Shoots and Misses**, Figure X.8.

Proceeding if r shoots and misses

Standard SxP Start	**r shoots (u, r, y)-s**	h(7) A-h(0) **STANDARD (y,u, r)-s**	h(8) W-h(2) **TAC (y, u, r)-s**	**3-FIX (r, y, u)-s**	**STANDARD (u, r, y)-s**



IX.1	**IX.8**	**IX.9 – h(1)**	**IX.10 – h(2)**	**IX.11 – h(3)**	**IX.6 – h(4)**

Figure IX.8: k peels u hard at h(7) A-h(0), from R(0,7) to V(1,8) – [CO is (u, r, y)] – and then k takes off back to r. With a *challenging* full-roll, k sends r from V(0) to E(2,8) as k goes to y. k sends y from P(1) to R(1) as k goes to position at h(1), Figure IX.9, STANDARD.

Figure IX.9: k makes h(1) and goes to y. k rushes y from R(1) to the southwest and croquets y to P(3)– [CO is (y, u, r)] – as k gains a rush on u. k Peels u at h(8) W-h(2), converting u from V(1) to V(2) as k goes to r. k escapes with r rushing r to P(2) and then croqueting it to R(2) as k goes to position at h(2), Figure IX.10, TAC.

Figure IX.10: k makes h(2) and goes to r. k sends r from R(2) to P(4) – [CO is (r, y, u)] – as k goes to y at P(3). Then k sends y to R(3) as k goes to position at h(3), Figure IX.11, 3-FIX.

When k reaches h(3), Figure IX.5, after y shoots from the Sextuple leave, he has r as R(3), y as V(3), and u as P(4). Compare this to Figure IX.11 which occurs after r shoots from the Sextuple leave. Here y is R(3), u is V(3) near h(8) and r is P(4). While the play from Figure IX.11 is more difficult, we can reach Figure IX.6 regardless of which ball, r or y, shoots from the cross wire and this can be followed by an attempt at the h(9)-Peel A-h(4), with the First-Triple joining the Second W-h(6) or W-h(7).

When Things go Wrong with the h(8)-Peel

For the two paths to join as just outlined above, play from Figure IX.9 to Figure IX.10, when r shoots, must came off as desired, with the h(8)-Peel being completed W-h(2). However, the rush-peel at h(7) can send u from R(0) all the way down to position at h(8) as R(1) and tempt the Striker into an attempt A-h(1). Suppose the h(8)-Peel is tried and fails. In this case, k has the flexibility in CO to go make h(2) and then come back for the peel.

From Figure IX.9 (repeated): k makes h(1) and goes to u. This time k sends u from R(1) to V(2,7) – [CO is (u, r, y)] – as k goes to r. k sends r from V(1) to E(3,7) as k goes to y. k escapes to h(2) with y, rushing y from E(2,7) to P(2) and then croqueting it to R(2) as k goes to position at h(2), Figure IX.12, STANDARD.

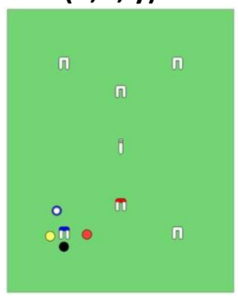
Figure IX.12: k makes h(2) and goes to y – [CO is (y, u, r)]. k rushes y from R(2) to V(3), as a Helper-Ball, as k goes to u. k peels u at h(8), W-h(3) converting it from V(2,8) to M(4,9), as k goes to r. Then k escapes with r to h(3), rushing r from E(3,8) to P(3) and then croqueting it to R(3), Figure IX.13, STANDARD.

Figure IX.13: k makes h(3) and goes to r – [CO is (r, y, u)]. k sends r from R(3) to V(4) as k goes to y. k sends y from V(3) to P(5) as k goes to u. Then k rushes u from h(8) to h(4), converting u from M(4,9) to P(4), and then croqueting it to R(4) as k goes to position at h(4), Figure IX.14, STANDARD. k is now in position to attempt the h(9)-Peel A-h(4).

This alternative way to complete the h(8)-Peel W-h(3) works because the h(9)-Peel can be done as a Back-Peel A-h(4) which allows more flexibility as to the functions of the balls at h(3). However, delaying the peel until after h(2) makes it more challenging.

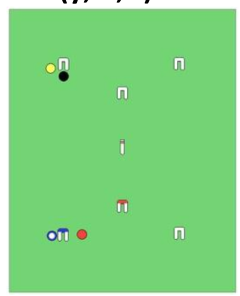
h(8) W-h(3)

Start (u, r, y)-s



IX.9 – h(1)

STANDARD (y, u, r)-s



IX.12 – h(2)

STANDARD (r, y, u)-s

IX.13 – h(3)

STANDARD (u, r, y)-s

IX.14 – h(4)

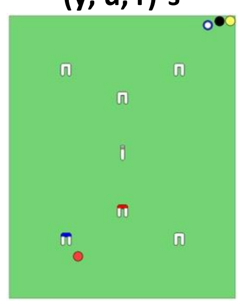
When Other Things go Wrong: Of course, other things can go wrong – in particular the h(8)-Peel may fail W-h(3) or W-h(4). These issues are also faced in play from a Delayed SxP Leave and are dealt with below.

DELAYED SEXTUPLE

Delayed SxP Leave Start

IX.15

y shoots (y, u, r)-s

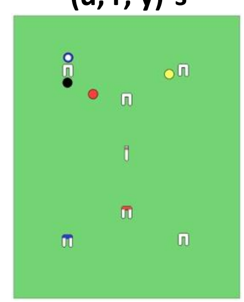


IX.16

STANDARD (r, y, u)-s

IX.17 – h(1)

STANDARD (u, r, y)-s



IX.18 – h(2)

Figure IX.15 shows the Delayed SxP leave from Chapter IV.

In T-AC it does not matter which ball (r or y) shoots (as long as they miss!). In COAC, CO matters, but less than you might think as long as Striker is comfortable with Hogan-type-Rolls. This is because the intent is to complete the h(7)-Peel no later than A-h(2). This is a Back-Peel which, as described previously allows more flexibility. We will take k to the Back-Peel position first assuming y shoots and then do it again assuming r shoots. The positions can merge at this point.

Assuming y Shoots

<u>Figure IX.16</u>: k roquets y and sends y from R(0) to V(1) near h(3) – [CO is (y, u, r)] – as k goes to u. k rushes u from V(0,7) to P(2) and then takes off to (or roll-peels to) r at h(1). k sends r from P(1) to R(1) as k goes to position at h(1), <u>Figure IX.17</u>, STANDARD.

<u>Figure IX.17</u>: k makes h(1) and goes to r. k sends r from R(1) to V(2) – [CO is (r, y, u)] – as k goes to y. y becomes P(3) as k goes to u. k moves u from P(2,7) to R(2,7) as k goes to position at h(2), <u>Figure IX.18</u>. *k is set for the h(7)-Peel as a Back-Peel A-h(2).*

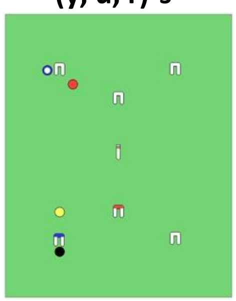
Assuming r shoots

<u>**r shoots**</u>

r shoots
(u, r, y)-s

IX.19

STANDARD
(y, u, r)-s



IX.20 – h(1)

EXPEDITE
(u, r, y)-s

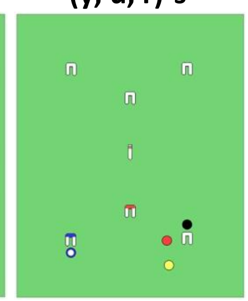
IX.21 – h(2)

<u>**Merged Play**</u>

<u>h(7) A-h(2)</u>
STANDARD
(y, u, r)-s

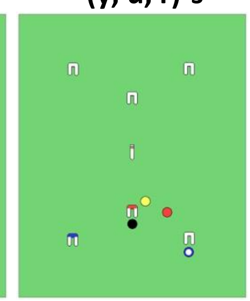
IX.22 – h(3)

<u>h(8) W-h(4)</u>
REPEAT
(y, u, r)-s



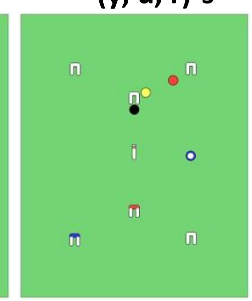
IX.23 – h(4)

REPEAT
(y, u, r)-s



IX.24 – h(5)

<u>h(9) W-h(6)</u>
REPEAT
(y, u, r)-s



IX.25 – h(6)

Figure IX.19: k rushes u to h(8) converting u from R(0) to V(1,7) – [CO is (u, r, y)]. k takes off to r near c3. With a pass-roll, k sends r to h(2), converting it from V(0) to P(2) as k goes to y. k sends y from P(1) to R(1) as k goes to position at h(1), Figure IX.20, STANDARD.

Figure IX.20: k makes h(1) and goes to y. k sends y from R(1) to P(3) – [CO is (y, u, r)] – as k goes to u. k sends u from V(1,7) to R(2,7) as k goes to r. Then with a simple L&H, k sends r from P(2) to V(2) as k goes to position at h(2), Figure IX.21, EXPEDITE. *k is in position to attempt the h(7)-Peel as a Back-Peel A-h(2). If u and r were well-played at h(2), then k could certainly have tried the h(8)-Peel BEFORE h(2) as a Transit-Peel, W-h(2), if he were so inclined.*

Figures IX.18 and IX.21 are identical. We will carry on with merged play from Figure IX.21.

If the h(8)-Peel is completed W-h(4)

Figure IX.21: k makes h(2) and goes to u. k peels u hard A-h(2), sending u as far as possible toward h(8) converting u from R(2,7) to V(3,8) – [CO is (u, r, y)] – as k goes to r. k sends r from V(2) to E(4,8) as k goes to y. k sends y from P(3) to R(3) as k goes to position at h(3), Figure IX.22, STANDARD[49].

Figure IX.22: k makes h(3) and goes to y. k sends y from R(3) to R(4) – [CO is (y, u, r)] – as k goes to u. k peels u at h(8), W-h(4), converting it from V(3,8) to V(4,9) as k goes to r. Then k rushes r to h(4) and, with a short L&H, k sends r from P(4) to E(5,9), as k holds position at h(4), Figure IX.23, REPEAT. *This is the earliest that k can do this peel and relies on a strong h(7)-Peel.*

Figure IX.23: k makes h(4) and goes to y. k sends y from R(4) to R(5) – [CO is (y, u, r)] – as k goes to u. k rushes u to h(9) converting it from V(4,9) to V(5,9) as k goes to r. Then with a short L&H, k sends r from E(5,9) to E(6,9) as k goes to position at h(5), Figure IX.24, REPEAT. *This peel can be completed W-h(5), but it is more realistic to position u for the next attempt.*

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[49] CO Complicates but does not eliminate earlier attempts at the h(7)-Peel: h(7)-Peel A-h(0): If y shoots, Figure X.18, then k hits y as R(0), sends y where he wants y to go, and then rushes u from V(0) to h(7) and can attempt the roll-peel before making h(1) going to r as P(1). If r shoots, Figure IX.21, then k can rush u from R(0) to h(7) and peel going back to r as V(0) in c3 before going to y at P(1). For this reason, expect r to shoot. h(7)-Peel W-h(2): In this instance u must be V(1,7) in order attempt the peel W-h(2). With CO, this means that y must be R(1). This is certainly doable if r shoots to c3 (or c4), it is not possible if y shoots because y needs to be sent to R(1) while k maintains a rush on u.

Figure IX.24: k makes h(5) and goes to y. k sends y from R(5) to R(6) – [CO is (y, u, r)] – as k goes to u. k peels u hard at h(9) W-h(6), converting u from V(5,9) to V(6,10) as k goes to r. Then k rushes r to h(6) and sends it from P(6) to E(7,10), with a short L&H, as k goes to position at h(6), Figure IX.25, REPEAT.

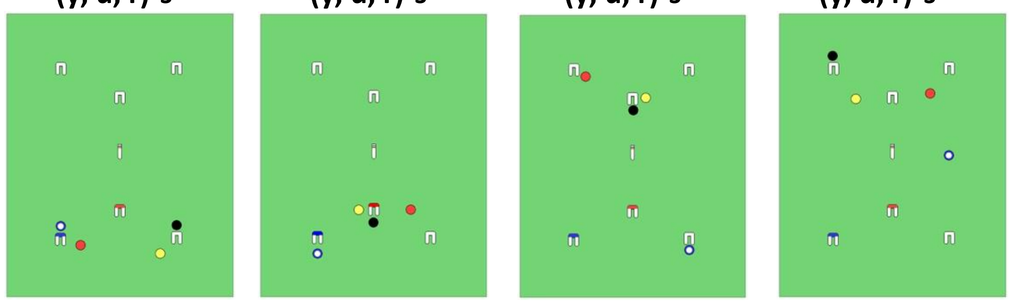
The Marriage of the Triples if the h(9)-Peel is Completed W-h(6)

As described above this First-Triple completed the h(7)-Peel A-h(2), h(8) W-h(4), and h(9) W-h(6). k is in position to start the Second-Triple by attempting the h(10)-Peel W-h(7). Getting here relies heavily on completing the h(8)-Peel W-h(4). Finishing a sextuple becomes much more difficult if this does not happen, as illustrated by the next panel.

If the h(8)-Peel is Completed W-h(5)

k may fail or not attempt the h(8)-Peel W-h(4). Ideally k leaves u in good peel position at h(8) on his way to h(4) and plans to come back and complete the h(8)-Peel W-h(5), one hoop later.

Start (y, u, r)-s	h(8) W-h(5) REPEAT (y, u, r)-s	REPEAT (y, u, r)-s	h(9) W-h(7) REPEAT (y, u, r)-s



IX.26 – h(4)	IX.27 – h(5)	IX.28 – h(6)	IX.29 – h(7)

Figure IX.26: k makes h(4) and goes to y. k sends y from R(4) to R(5) – [CO is (y, u, r)] – as k goes to u. k peels u at h(8), W-h(5) converting u from V(4,8) to V(5,9) as k goes to r. Then, with a short L&H, k sends r from E(5,8) to E(6,9) as k goes to position at h(5), Figure IX.27, REPEAT.

Figure IX.27: k makes h(5) and goes to y. k sends y from R(5) to R(6) – [CO is (y, u, r)] – as k goes to u. k rushes u from h(8) to h(9) converting u from V(6,9) to V(7,9) as k goes to r. k rushes r closer to h(6) and then with a short L&H, k sends r from P(6) to P(9) as k goes to position at h(6), Figure IX.28, REPEAT. *The plan is to roll-peel the attempt at h(9).*

Figure IX.28: k makes h(6) and goes to y. k sends y from R(6) to R(7) – [CO is (y, u, r)] – as k goes to u. k peels u at h(9), W-h(7), converting u from V(7,9) to V(8,9) as k goes to r. Then, with a long L&H, k sends r from E(7,9) to E(8,10) as k goes to position at h(7), Figure IX.29, REPEAT.

The Marriage of the Triples if the h(9)-Peel is Completed W-h(7)

In T-AC, after making h(6), Striker (k) would likely send y to h(8) as a Pioneer rather than to h(10) as an Escape-Ball to h(8). This would be done in the expectation that Peelee (u) was not likely to progress far enough toward h(10) after the peel at h(9) to make the peel attempt W-h(8) worthwhile. Striker would then go to u, attempt the h(9) peel and make his way to h(7) with r. He would make h(7) with r, send r to h(10) as the E(9,10), adjust u and take-off to y at h(8), planning to complete the h(10) peel W-h(9), followed by straight double.

This is not possible in COAC because it violates CO! y cannot be used as an Escape-Ball, only r. Therefore, k should attempt the long L&H with r. After making h(7) k should send y to P(9) going to u, and rush u to h(10) for a peel attempt. Regardless of the outcome, k will escape to h(8) with r. If the h(10)-Peel is completed W-h(8) then k may be able to finish with a delayed or Straight-Double. If the attempt W-h(8) fails, then k will be forced to make h(9) with y (using 3-FIX or 3-L&H) and will be on a Straight-Triple-Peel.

X.. OPENINGS

The CO rule applies from the play of the 1st ball. In particular it applies to the 3rd ball even before the 4th ball enters the game.

… openings should be played by both teams to maximize the percentage chance of their team obtaining the first break…
Clarke, "Supershot Openings", BECT, page 38.

It is generally accepted that the team playing first in a T-AC game, herein u/k, have a slight advantage. This can be deduced from the fact that most players choose to play first after winning the coin toss. While this advantage can be realized with a third-turn break, often the advantage is on fifth-turn. This is the first turn with all four balls in play where Striker can choose to play either ball, often starting with a short shot.

The goal in COAC is the same – to secure the first break. And it is still possible to go round third-turn. But CO presents two obstacles:

(i) The mechanics of running a 3-ball break are more difficult. L&Hs are required at each hoop such that only one ball is used as Reception, while the other ball is used (with a L&H) as the Pioneer, (i.e., the 3-L&H Procedure); and

(ii) The team playing 2nd gets to choose the color of that ball, which dramatically alters how, or if, the 3rd ball can start a 3-Ball break.

Together these influences reduce the benefit of going first and puts increased emphasis on 4th, 5th, and 6th turns.

The 1st Ball

In and of itself, the color of the 1st ball is irrelevant (we use u). This is because the team that plays second, can play a ball that is either before or after the color of the 1st ball as defined by the CO rule.

In T-AC, play by the 1st ball to a distance greater than the prevailing CD is standard and often encourages the next player to set a tice, ending his turn with one ball at a tice position and one further from the baulk lines. That is, no opening from T-AC advocates sending the 1st ball to a tice distance (a distance shorter than the CD). It is possible for the 2nd ball to err, (i.e., send the tice too short or too long) and therefore, there is no need for the 1st ball to make life easier on the 2nd ball by doing his work for him.

We now turn to COAC. We will assume initially that the discussion above applies, that whatever u chooses to do, its resulting distance from the baulk lines is greater than the prevailing CD. Then, later we will relax this assumption.

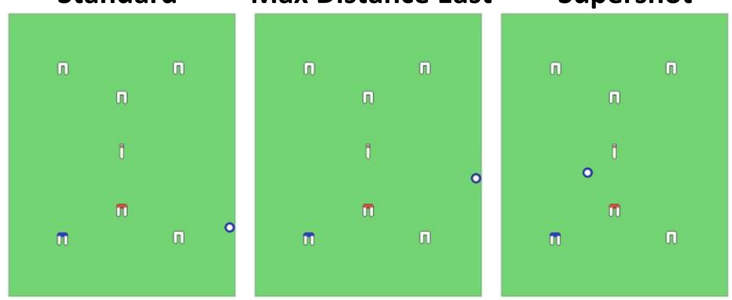
The Panel of Figures below shows the two basic options available to the 1st ball when he shoots to a distance in excess of the CD:

(i) **u can play to a boundary:** usually shooting to the east boundary, level with, or just north of, h(4) – the Standard Opening, Figure X.1, or to a Maximum Distance point, Figure X.2, usually on the east boundary – Max Distance East. Or,

(ii) **u can play into the lawn**: as in a Supershot opening, Figure X.3.

Boundary-Line | Into the Lawn

Standard | **Max Distance East** | **Supershot**



X.1 | **X.2** | **X.3**

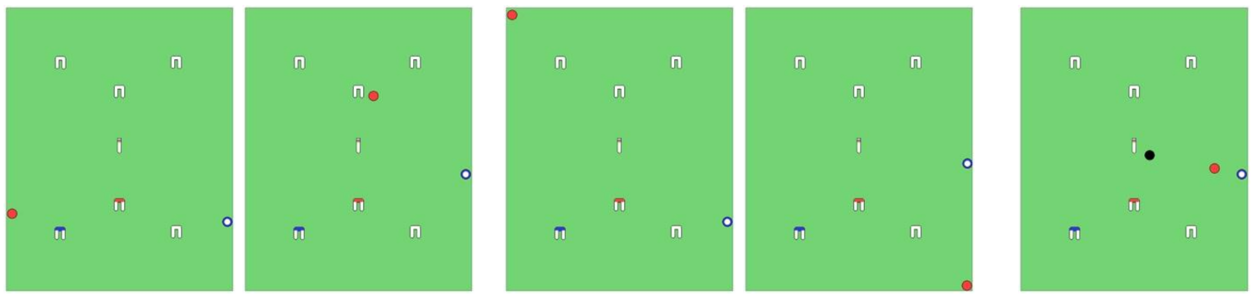
2nd Ball Tices Played Against Boundary-Line Openings, and the 3rd Ball's Response

Often, r/y will play the 2nd ball to a tice position against a Boundary-Line 1st ball played by u in a T-AC game. Failure to do so allows the 3rd ball (k) to lag to or shoot at u, usually leaving the 4th ball only shots that have less than a 50/50 chance of hitting, and, thus, a less than 50/50 chance of winning the opening and getting the first break.

Popular tices are the A-Baulk and the Duffer Tices, Figures X.4 and X.5. These are set at the CD, or slightly shorter, to provide true enticements for the 3rd ball to shoot at them. Other possibilities include shooting from B-Baulk to just south of c2, Figure X.6, or shooting at a ball on the east boundary ball from B-Baulk and ending near c4 if it misses, Figure X.7. For top players, the balls near c2 and c4 represent true tices, although it is very rare for the turn 3 player to shoot at the c2 ball. For many players they are pseudo ("vanity") tices beyond their CD.

True Tices | Pseudo Tices | 3rd Turn

A-Baulk | **Duffer** | **B-Baulk to c2** | **B-Baulk to c4** | **DSL**



X.4 | **X.5** | **X.6** | **X.7** | **X.8**

A 2nd turn tice places a ball at a shorter distance from the baulk lines than the 1st ball. This encourages the 3rd ball to shoot at it. In T-AC, the prize, hitting the tice, can lead to a 3rd turn break, or to setting the equivalent of a DSL as shown in Figure X.8, now with all balls beyond the CD – leaves of this nature are often referred to as a "Dream Leave". However, in COAC, the team that plays second (r/y) can limit the benefit of hitting the tice to just the 3rd Turn DSL. r/y does this by choosing the color of the tice ball to be (r) the AFTER-Partner-Ball when considered from the perspective of the 3rd ball, k, where u is his Partner. k can hit r, but k cannot then hit u because r is after u in CO.

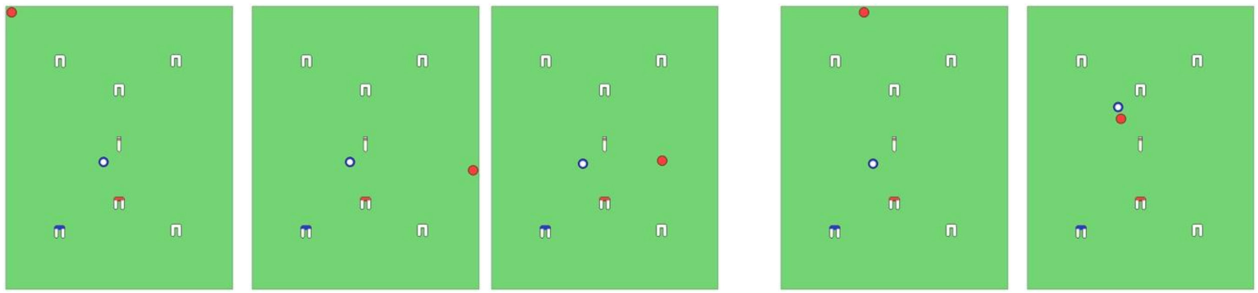
It is theoretically possible to start and run a 9-hoop break with k hitting r. k needs to make h(1) and then run a 2-ball break with r until k can make a hoop and hit u. Then k can continue with a 3-Ball break with 3-L&Hs at each hoop. Getting this done is difficult. For the purposes of this chapter, we have discounted this possibility. Thus, u/k and r/y both believe that u/k cannot, and therefore will not, attempt a 3-ball break to start a COAC game.

2^{nd} Ball Responses to the Supershot Opening

Figures X.9, X.10 and X.11 show the three classic T-AC responses to the Supershot opening: (i) Shooting to a position that is just south of c2, (ii) Shooting to Max Distance on the east or (iii) Shooting to a position popularized by Samir Patel that is in lawn, between h(3) and h(4). These are all available in COAC and should once again be done with r (and not y) to prevent k from having any chance of getting started. In each case, if k shoots at r and misses, then he can leave a double target for y.

Responses from T-AC — Response from COAC

c2 from B-Baulk — **Max Distance** — **Patel** — **r shoots, misses** — **r shoots, hits**



X.9 — **X.10** — **X.11** — **X.12** — **X.13**

Figures X.12 and X.13 show two outcomes from another possible play by r/y – r shoots at u from A-Baulk.
Before considering the benefit of this strategy, let's consider the cost. From Figure X.12, under COAC rules, k will hit r, but in all likelihood, the best k can do is set a 3-Ducks-style leave centered around u, which is a dead ball for k after it roquets r. y will be left with a less than 50/50 chance to win the opening.

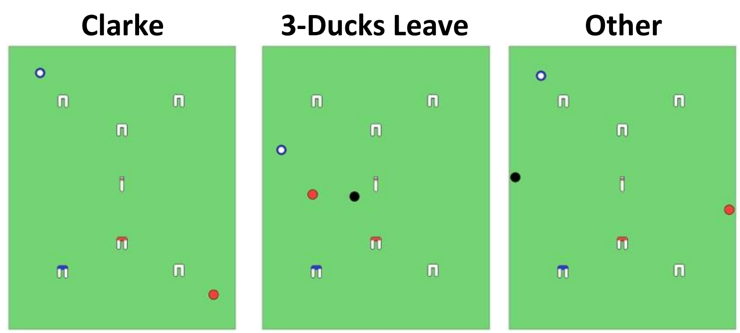
The 2^{nd} Ball Shoots at and Hits the 1^{st} Ball

It is fairly rare to see the 2^{nd} Ball shoot at the 1^{st} in a T-AC game, unless r is so strong as to be able to run a 2-ball break, or u/k is so strong that r feels the only option for preventing a 3^{rd} turn break is to hit u and bury the balls near corners.

With the introduction of CO into the mix, the 2^{nd} ball shooting at the 1^{st} has more merit. Consider what can happen if r (or y) hits u. There are two continuations:

The first was suggested by Chris Clarke (actually for T-AC): *" … why not send U to 2-3 yards ESE of corner II and play R 3 yards west of IV, giving Oppos a choice of 10 yarders but no break?" Ibid. page 41.* This outcome is even better in COAC – r/y gets to determine the position of the ball that k will shoot at first, presuming k wants to move both balls away from the baulk lines following CO.

Figure X.14: **Clarke's Leave**. It is k to play. k needs to move both u and r away from their nearby baulk-lines to avoid giving y a 10 yarder and perhaps the first break. k could attempt to make h(1) with u directly, or with r after going to u. These are aggressive plays, that are unlikely to lead to a 3rd turn break. It is better for k to: (i) roquet u, (ii) use a thick take-off or a pass-roll to move u away from B-Baulk as k goes to r, (iii) send r to u, and (iv) go to u to complete a 3-Ducks leave, as shown in Figure X.15. *Note however that achieving this leave requires an extremely large pass-roll shot, which may not be in the armory of most players.*



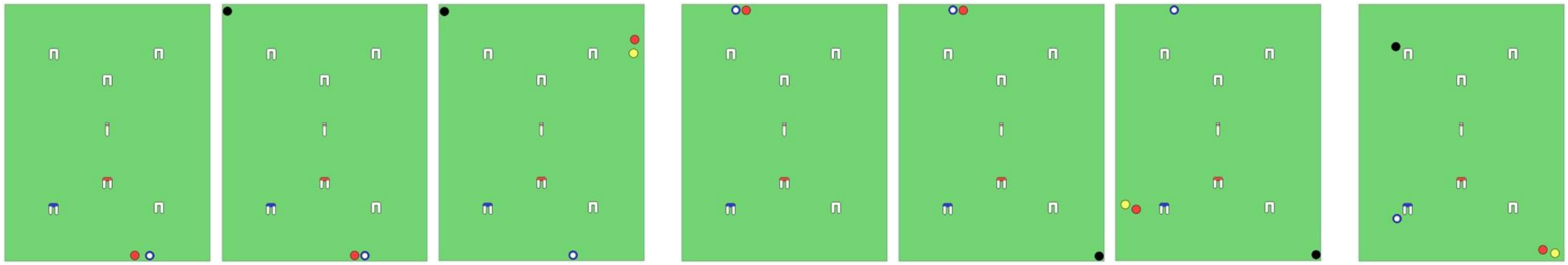
X.14 X.15 X.16

Success here will leave y without a 50/50 shot, and should, on average, cause r/y to lose the opening. If Striker hits u but is unable to move u far enough away from B-Baulk, then k should still go to r and move it away from A-Baulk, separate itself from both u and r as much as possible, and orient the CO of the balls such that getting going by y should be difficult, perhaps as shown in Figure X.16. The 4th Ball y should be able to gain the innings for r/y by hitting u, but usually will not get started and will set a leave instead.

Figure X.17**:** This is a possibility created by the CO rule. The 2nd ball, r, hits u. Then r "croquets-out", sending u and r out on the south boundary, just east of the end of A-Baulk, Figure X.17, with a particular orientation – r is to the west of u. An equivalent of this outcome can be engineered on the north boundary, Figure X.20[50].

[50] It can be created at either baulk using y (switching the positions of y and u on the boundary). However, play by y usually involves needless risk.

Croquet-out by r | k to c2 | y's response | Croquet-out by r | k to c4 | y's response | Second Leave



X.17 X.18 X.19 X.20 X.21 X.22 X.23

Initial Leave After Croquet-out On the South Boundary

Initial Leave After Croquet-out On the North Boundary

Play by the 3rd ball k: k has easy access to r from the end of A-Baulk, but r blocks k's access to u. To establish a break, CO would have k go to u first and then to r, but this is impossible unless k jumps r to hit u, or k hits u from B-Baulk. Of these, the jump shot[51] is probably more likely to succeed than is the shot from the distant baulk. The best response for k may be to finesse, have k shoot to just south of c2, Figure X.18, or just north of c4, Figure X.21. This turns the problem over to y.

Play by the 4th ball y: y has easy access to r, but then going from r to k and back to u to make h(1) seems like a lot of effort, that is not likely to bear fruit. In an ideal world, y as the 4th ball, would maneuver the balls away from their given positions to something like that shown in Figure X.23. However, getting this done in one turn is very difficult following CO.

Better for y is to set a leave as shown in Figures X.19 and X.22. In Figure X.19, r's rush on y is aimed to u but could be cut to h(1) or c4 if u relocates. In Figure X.22, y's rush on r is aimed at h(1) with the possibility rushing to k. It is u/k to play[52]. The rationale for these leaves was explained in the discussion in Chapter V on Two-Turn Leaves.

[51] The possibility of jumping makes the positioning of the balls on the baulk line all the more important. Further from the end of the baulk is better, as is having the two balls close together to require a more accurate jump.

[52] This r/y preference for the North or South boundary depends on which of these leaves they can accomplish and then on which one they prefer.

Figures X.19 and X.22 are the initial leaves in what r/y hope will become Two Turn Leaves. These are set in advance of setting a stronger leave, presuming that team u/k does not hit-in. No matter where u/k finesses, r/y should be able to set another leave that has the properties of Figure X.23, now achieved one turn later.

We believe r/y have an advantage if they hit on 2nd turn.

5th Turn and Beyond: k had no chance for a 3rd turn break, and r/y had no real opportunity for a 4th turn. Possibilities for both teams really begin with 5th Turn, from Figure X.19. k or u hitting anything is likely to win u/k the innings but lead to another leave; k or u shooting at any other ball and missing should give r/y a chance of getting going.

Plays Involving the BEFORE-Partner-Ball (y)

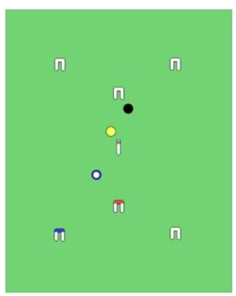
In this chapter u plays first to start the game and, so far, all 2nd ball responses by r/y have been by r. This was by design. In each of the situations above, playing r encourages k to shoot at r. However, if k hits r, then k is able to set a DSL or 3-Ducks leave but has no realistic way to continue a 3-Ball break.

u to Supershot — u to Max — u to Standard

Dribble

X.24

Double Dribble

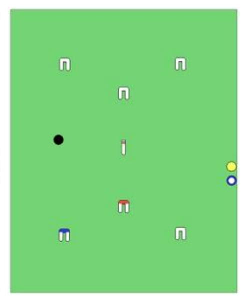


X.25

y at u

X.26

k to the west

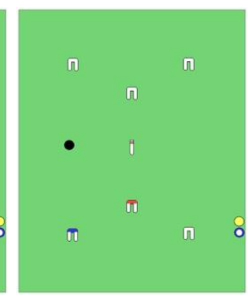


X.27

y at u

X.28

k to the west



X.29

In Figure X.24, u plays a Supershot and y follows by dribbling at u. If y hits u, then y can croquet-out or set the Clarke Leave, as discussed above. If y misses, then it should aim to end close to the peg. It is k to play. k probably has a double with u and y, but his only real interest is hitting y which may be more difficult with u where it is. k can try to dribble and hit y, Figure X.25. (This can be done from either baulk but here it was shown being attempted from A-Baulk). If k shoots and misses, then r should have a triple target! k's other possibility is to shoot near to y but not give another double. r will have to be satisfied with the original double formed by u and y. The risk in this strategy is that k hits y and runs a 3-ball break that could have avoided by playing r.

In Figure X.26, u goes to Max Distance East and y shoots at u from the end of A-Baulk. If y hits in, then y can once again set the Clarke Leave or croquet-out. If y misses, then he will leave a double for k. But if k misses, then he will leave more than a double for r. Therefore, in Figure X.27, k chooses to go to a position that is useful as a pioneer for h(1). Assuming the 4th ball (r) misses, then u plays. u hits y onto the lawn a bit and takes off to r. In order to develop a break, u would roll r to P(2) while going to k to make h(1).

r/y choose to play y and not r in this instance to prevent k from simply going between the peg and u to arrange an easy build for u if r were to miss the double target from B-Baulk.

In Figure X.28, u goes East of h(4) instead of Max Distance East and y missed, but the scenario is nearly identical to Figure X.26. k responds similarly and leaves a decent P(1), Figure X.29. It is unlikely that r (or k) has a double from A-Baulk, but one can be manufactured with appropriate placement on B-Baulk. In this scenario r chooses between a single ball 15-yard shot or a 25-yard double target. We think this is a better scenario for u/k than in Figure X.27.

First Turn Tices[53]

If openings devolve into the second ball attempting to hit every time with little risk of giving up a 3rd turn break, it is possible that the first turn will change to make a miss more punitive. The simple change, that does not give second turn a shorter shot, would be to move the opening to Max Distance West or west of h(2). If k is able to hit in to 2 balls on the west side, there is a greater chance of making h(1) and possibly organizing a 3-Ball break. We will explore other west side tices below.

If u/k are willing to give r/y a shorter shot, they can discourage a firm shot and possibly manufacture an easy start for the third ball. One small change is making the Supershot shorter as in Figure X.30. A ball this close may influence color choice for r/y, with y shooting gently and a miss, Figure X.24. If r/y chooses to shoot softly, the shot is less likely to hit, and k may be left with a relatively short hit in on u. k can turn u and y into a double target and if k hits y there is an easy start to the 3-Ball break. If k hits u, he could try

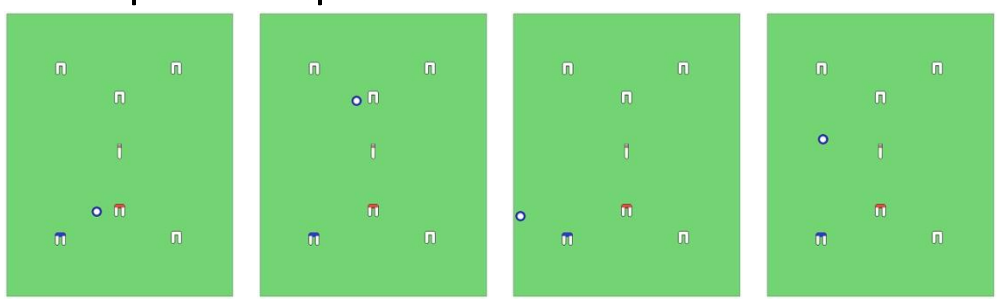
[53] Ben Rothman is responsible for much of this section.

to score h(1) and/or set a nice leave for u with y as the closest target for r. Sadly, there is no additional advantage gained if r misses a firm shot all the way towards B-Baulk, k could only set a leave and y could still shoot at u for the innings.

For a more substantial change, u/k could resort to tices that are usually 2nd turn responses from T-AC. If u wants to set a Duffer tice, it will behoove him to place it as in Figure X.31[54], just west of h(6) so that a missed shot puts r/y on the west side and possibly on or near A-Baulk. This may encourage y to once again attempt a gentle roquet, so that k has its shortest shot at partner. If k hits u, it cannot hit the BEFORE ball until it scores h(1). It is possible for r/y to shoot from B-Baulk and have a firm miss end up in the middle of the west boundary, but that would stretch this 10-yard shot as long as 16 yards.

Another classic 2nd turn tice that is reasonable here is the A-Baulk tice, Figure X.32. If r/y hit, it may be too difficult to control the croquet-out on the South boundary and they may have to roll out of bounds on the North boundary instead. If r misses, k might rush u to r or at least be able to set a nice leave. If k misses, it is likely to be closer to u than r which leaves all the balls on the west boundary, but out of CO for y, making it hard to build a break if y hits u first. The downside is that this shot does not force r/y to consider shooting softly, and very rarely would k earn a rush to h(1).

Short Supershot **Aspinall Duffer** **A-Baulk Tice** **Reverse Patel**



X.30 **X.31** **X.32** **X.33**

[54] "Aspinall advised putting U to the West, but we prefer it 2 feet or so to the East". Wylie, Expert Croquet Tactics, page 142, (U substituted for R).

With this “bluff”-style opening of u playing a very short Supershot, there is of course the opportunity for r to play a “double-bluff” response – perhaps by playing r into c3. We will leave it to the reader to derive the responses to this scenario!

Lastly, u/k could use a Supershot response to pressure r/y into shooting a longer shot than necessary. Using a spot derived from the Patel Response, u could put a ball between hoops 1 and 2 that is just North of the Peg, Figure X.33. This shot is not much shorter than the Max Distance, but a hard miss may end up within 8 yards of either baulk line. If r/y hit the tice, they may be forced to roll out on the North boundary instead of the South. To shoot firmly with less risk, r/y must stretch the shot out to nearly 19 yards so that a miss goes to c2. While this leaves k a 13-yarder, k does not get a break with a hit and a miss may leave a 13-yard double for y. If r misses, k does not have a good chance at a break. With a relatively short hit in, k can bring all the balls at least 16 yards from baulk lines as single targets for a strong leave. There is the possibility that r/y do not shoot at u (which is a slight victory) which would leave k a long shot.

These first ball tices would significantly change the openings with more hit-in attempts that result in less offense which means much more early interaction. Hopefully, this variety would reduce or perhaps even negate any advantage to winning the coin toss and make the opening a better combination of tactics and shooting.

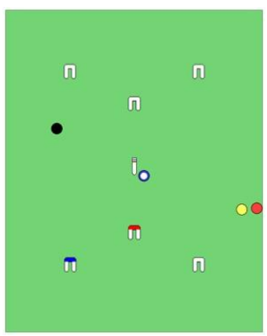
XI.. PEGGED-OUT ENDGAMES

COAC allows 2-on-1 and 1-on-1 endgames. These can arise after a Standard-TPO or after a NZ-TPO – both as presented below. The team pegging-out loses its right to future baulk lifts, while the other team maintains them. CO and the lift-to-contact if Striker makes h(10) still apply. These COAC-specific rules alter the balance of power between the two teams as we will see in the discussion below.

The Standard-TPO

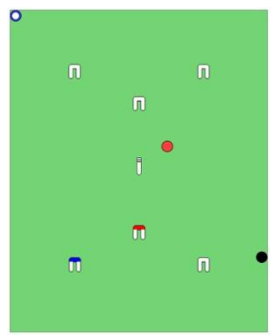
In <u>Figure XI.1</u>, y ran the first break and ended by setting a DSL: y is for h(10), r is for h(1), and u and k are both for h(1). y has followed the prescriptions in this book for a COAC-DSL: (i) r has a rush on y ,(ii) u, the Oppo-Ball that r can use After-Partner (y) is at the peg, and k, the ball r can use Before-Partner is placed in the vicinity of h(2). Finally, u/k has a lift-to-baulk.

DSL: y for h(10)
r, k, u for h(1)



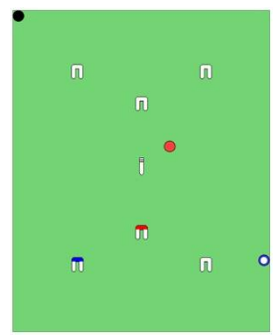
XI.1

T-AC/COAC
u for peg
k, r for h(1)



XI.2

T-AC
k for peg
u, r for h(1)



XI.3

COAC
k for peg
u, r for h(1)

XI.4

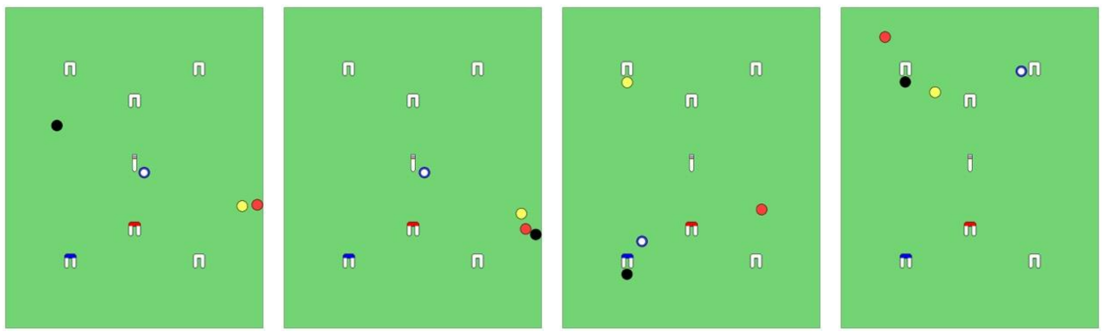
In TAC: Assuming u/k hit-in and attempt a TPO, they are agnostic as to which ball (u or k) they play and either ball would attempt to hit r and then use r to get a rush on y towards Partner. When the TPO on y is completed, u/k are equally content turning the lawn over to r from a leave – shown here as the accepted standard T-AC Contact-Leave, where: (i) u/k's peg ball, u in <u>Figure XI.2</u> and k in <u>Figure XI.3</u>, is usually in c2, and (ii) its other ball, the h(1), k in <u>Figure XI.2</u> and u in <u>Figure XI.3</u>, is slightly north of level with h(4).

In COAC: u/k are agnostic as to which ball (u or k) hits-in from the DSL, but they have a definite preference concerning which Oppo-Ball is roqueted – u prefers to roquet y, while k prefers to roquet r. In both cases, a hit-in grants Striker immediate access to all four balls and the possibility of running a Standard-Triple-Peel but this time on Oppo, as a TPO, following the format discussed earlier in this book for a Standard-Triple-Peel. After pegging out y, u/k sets a contact leave that makes a start at h(1) difficult for r. While Figures XI.2 and XI.3 are both still possible, we believe that CO makes Figure XI.4 superior to Figure XI.3 in COAC.

The NZ-TPO

Although not very common, in both T-AC and COAC Striker can run a NZ-TPO instead of a Standard-TPO. From before, on 4th turn, y hits-in, runs 9 and sets a DSL for r, Figure XI.1. Then k lifts to B-Baulk and hits-in, roqueting r, Figure XI.5.

Start DSL | **k roquet r** | **STANDARD** | **EXPEDITE**



XI.1 | **XI.5** | **XI.6** | **XI.7**

k decides to run a NZ-TPO – A two-part TPO[55] where: (i) k Peels y at h(10) while running no more than 6 hoops and setting the equivalent of a SxP leave [cross-wire r/y at h(1) and retreat to c3]. Oppos (r/y) miss, and (ii) Partner (u) completes the TPO[56] by Peeling y at h(11) and h(12), pegging-out y, and then either pegging-out u or setting a contact leave.

[55] One impact of the two part effort is that the three peels in a NZ-TPO take place over 18 hoops – a peel every 6-hoops, while in a standard TPO they take place over 12 hoops – a peel every 4 hoops.

[56] As discussed previously, k has the easier play to start the turn. Maybe u/k prefer a 2-on-1 with complete wiring and building their own 3-Ball breaks with safe L&Hs, which would require u to be the ball to peg-out y.

k's first decision is how to organize his break in order to Peel y at h(10), hopefully A-h(3).

Let's do the Arithmetic: Peeling y at h(10) A-h(3)**:** We use the Prior-Hoop Construct. k is "at" h(0), r is R(0), y is V(0), and u is M(1). We choose y as the RB. Thus, HAVE=V. In three hoops time (j=3), when k is in front of h(3) we want y to be R(3), as shown in Figure XI.8. Thus, WANT=R. In three FS, HAVE will rotate from V to V→GET=V, GET+1=P, and GET+2=R. WANT=GET+2 so over the next three hoops k needs to execute a REPEAT and 2 STANDARDs or the equivalent. An efficient and relatively low risk way to proceed is to start with a STANDARD and then substitute two EXPEDITEs for the REPEAT and the final STANDARD.

Figure XI.5. k croquets r from R(0) to V(1) – [CO is (r, y, u)] – as k goes to y. k sends y from V(0) to P(2) as k goes to u. k rushes u from M(1) to P(1) and then croquets it to R(1) as k goes to position at h(1), Figure XI.6, STANDARD.

Figure XI.6: k makes h(1) and goes to u. k sends u from R(1) to P(3) – [CO is (u, r, y)] – as k goes to r. k sends r from V(1) to R(2) as k goes to y. Then, with a short L&H, k sends y from P(2) to V(2) as k goes to position at h(2), Figure XI.7, EXPEDITE.

Figure XI.7: k makes h(2) and goes to r. k sends r from R(2) to P(4) – [CO is (r, y, u)] – as k goes to y. k sends y from V(2) to R(3,10) as k goes to u. Then, with a short L&H, k sends u from P(3) to V(3) as k goes to position at h(3), Figure XI.8, EXPEDITE.

The h(10) Peel is not done, but it is set-up, and therefore now is the right time to consider k's next issue – how to set the SxP Leave.

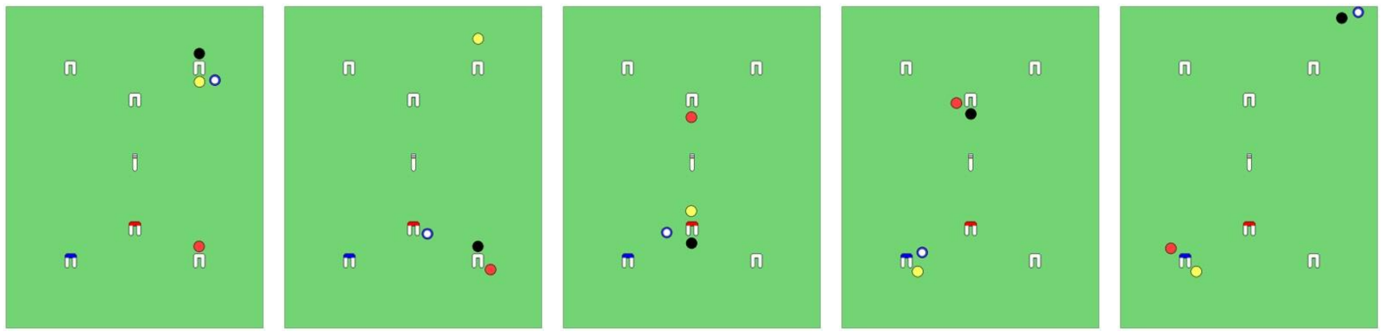
Let's do the Arithmetic: Setting the SxP leave**:** This time we choose r to be the RB because we know where r needs to be at a critical time when k is in front of h(6), see Figure XI.11. k is currently in front of h(3), Figure XI.8. Thus, HAVE=P. In three hoops time (j=3), we want r to be R(6). Thus, WANT=R. In three FS, HAVE will rotate from P to P→GET=P, GET+1=R, and GET+2=V. WANT=GET+1 so over the next three hoops k needs an EXPEDITE and two STANDARDs or the equivalent. In order to do the pending Peel at h(10), k will need to immediately use one of his STANDARDs. It is easiest to do the EXPEDITE second and follow with a final STANDARD.

Figure XI.8: k makes h(3) and goes to y. k Peels y at h(10) A-h(3) converting y from R(3) to V(4) – [CO is (y, u, r)] – as k goes to u. k sends u from V(3) to P(5) as k goes to r. k sends r from P(4) to R(4) as k goes to position at h(4), Figure XI.9, STANDARD.

Figure XI.9: k makes h(4) and goes to r. k sends r from R(4) to P(6) – [CO is (r, y, u)] – as k goes to y. k sends y from V(4) to R(5) as k goes to u. Then, with a short L&H, k sends u from P(5) to V(5), as k goes to position at h(5), Figure XI.10, EXPEDITE.

Figure XI.10: k makes h(5) and goes to y. k sends y to h(1) as the first ball in the cross-wire – [CO is (y, u, r)] – converting y from R(5) to V(6) as k goes to u. k sends u from V(5) to be the Escape-Ball [from h(8) to c3] as k goes to r. k sends r from P(6) to R(6) as k goes to position at h(6), Figure XI.11, STANDARD.

EXPEDITE | **STANDARD** | **EXPEDITE** | **STANDARD** | **SxP Leave**



XI.8 | **XI.9** | **XI.10** | **XI.11** | **XI.12**

Figure XI.11: k makes h(6) and goes to r. k sends r to h(1) to be the second leg in the cross-wire – [CO is (r, y, u)] – as k goes to y. k fixes y in the cross wire, escapes to c3 with u, and gives u a rush on k toward h(2), Figure XI.12, STANDARD.

The SxP Leave is set. It is r/y to play. We will assume that r will shoot as it is the h(1) ball. We will look at how u proceeds first if r shoots and then if r finesses to c4. We will see the paths join at h(2).

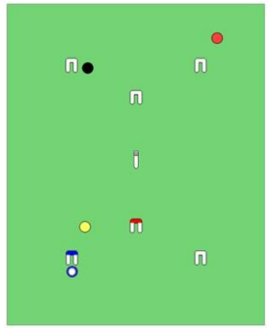
r shoots at u and misses, Figure XI.13: *Before u plays, it is useful to plan his strategy. u needs to complete Peels on y at h(11) and h(12) and then peg-out y. Along the way u would like to Peel k at least once, through h(7), to remove a lift hoop and to further distance k from r if u/k decide to peg two balls off at the end of the turn and start a 1-on-1 endgame But failure to complete the NZ-TPO will give Oppo a lift-to-contact and likely the game. Therefore, it is important for u to prioritize the Peels on y before any on k.*

Let's do the Arithmetic: u to Peel y at h(11) W-h(3): We consider u to be for "h(0)" and use y as the RB. We assume that u will go first to r as R(0), then to k as V(0) and finally to y as P(1). Thus, HAVE=P. In two hoops time (j=2), when u is for h(2), we want y to be V(2,11), thus WANT=V. In two FS, HAVE will rotate from P to V→GET=V. WANT=GET so over the next two hoops u needs to do two STANDARDs, or the equivalent.

r shoots

XI.13

STANDARD



XI.14

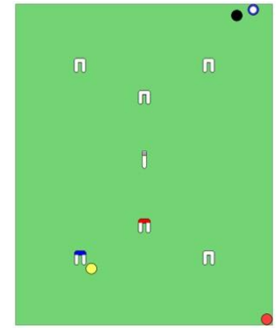
STANDARD

XI.15

TAC Peel W-h(3)

XI.16

r finesses



XI.17

Figure XI.13: u hits r and sends it towards h(3) – [CO is (r, k, y)] – converting r from R(0) to V(1). u sends k to h(2) converting k from V(0) to P(2) as u goes to y. u roquets y and sends y from P(1) to R(1) as u goes to position at h(1), Figure XI.14, STANDARD.

Figure XI.14: u makes h(1) and goes to y – [CO is (y, r, k)] – sending y from R(1) to V(2,11) as u goes to r. u sends r from V(1) to E(3,11) as u goes to k. u sends k from P(2) to R(2) as u goes to position at h(2), Figure XI.15, STANDARD.

Figure XI.15: u makes h(2) and goes to k. u sends k from R(2) to P(4) – [CO is (k, y, r)] – as u goes to y. u Peels y at h(11) W-h(3) converting y from V(2,11) to V(3,12) as u goes to r. u escapes to h(3) with r, converting r from E(3,11) to P(3) and then croqueting it to R(3) as u goes to position at h(3), Figure XI.16, using TAC.

*We stop u's break briefly to consider what would have happened if, from Figure XI.12, **r finessed**, resulting in Figure XI.17. The question is how will u proceed? The logical choice is to use the 3-FIX procedure to send k from R(0) to P(2) and y from P(1) to R(1) as u goes to position at h(1). Then one tough application of STANDARD can position the balls as shown in Figure XI.15. This would involve a Hogan-Roll type of shot to get r to E(3,11) while pass-rolling to k at h(2)[57].*

Thus, no matter where r shoots to from the SxP Leave (c3 or c4), the h(11) Peel A-h(3) of y could be attempted from the common position shown in Figure XI.15. *But before actually consummating the h(11) Peel, it is important to factor in the h(12) Peel!*

---

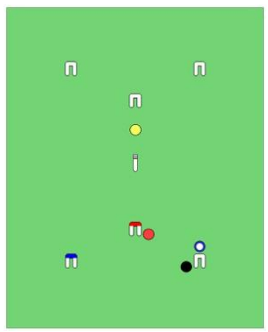
[57] Alternatively, u could wait to peel y at h(11) W h(4) or A-h(6). This delay could allow u to peel k through h(7) A-h(2).

Let's do the Arithmetic: Setting up for the Peel of y at h(12): In Figure XI.15, u is for h(2). This time we use y as the RB. y is currently V(2,11), thus HAVE=V. In three hoops (j=3), when u is for h(5), we want y to be R(5,12) [ready for a back-peel of y after u makes h(5)]. Thus, WANT=R. In three FS, HAVE will rotate from V to V→GET=V, GET+1=P, and GET+2=R. WANT=GET+2, so a REPEAT plus two STANDARDs, or the equivalent is necessary.

The question is, when should we do the REPEAT? It is possible to do it immediately but that would involve a long L&H at h(3). It is possible to wait one hoop, but that would involve a risky L&H at h(4). And it is possible to wait two hoops to do the REPEAT, but that would involve a long L&H at h(5)! It is possible to substitute two EXPEDITES for a REPEAT and one of the STANDARDs, but these turn out to be risky as well. Here is another equivalent that works: TAC followed by 3-FIX and EXPEDITE.

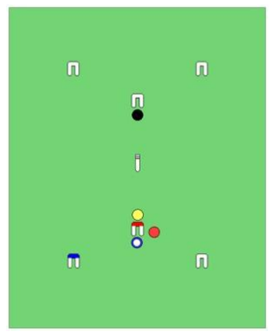
Figure XI.16: u makes h(3) and goes to r. u sends r from R(3) to P(5) – [CO is (r, k, y)] – as u goes to k at h(4). u sends k from P(4) to R(4) as u goes to position at h(4), Figure XI.18, 3-FIX.

3-FIX



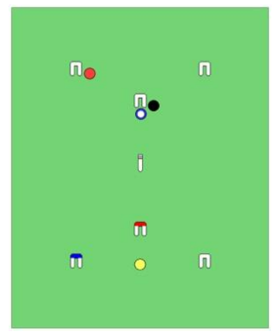
XI.18

EXPEDITE



XI.19

STANDARD Peel A-h(5)



XI.20

Figure XI.18: u makes h(4) and goes to k. u sends k from R(4) to P(6) – [CO is (k, y, r)] – as u goes to y. u sends y from V(4,12) to R(5,12) as u goes to r. Then, with a short L&H, u sends r from P(5) to V(5), as u goes to position at h(5), Figure XI.19, EXPEDITE.

Figure XI.19: u makes h(5) and goes to y. u Peels y at h(12) A-h(5), converting it from R(5,12) to V(6) – [CO is (y, r, k)] – as u goes to r. u sends r from V(5) to P(7) as u goes to k. u sends k from P(6) to R(6) as k goes to position at h(6), Figure XI.20, using STANDARD.

At this point in his break u has made tremendous progress. He might just want to finish his break to the peg, peg-out y and u, and leave a 1-ball game with k for h(7) and r for h(1), a 6-hoop advantage for k. But u will have made h(10) during his break, and therefore r will start with a lift-to-contact. The six hoop lead can be challenged/diminished immediately and threatened again when k makes h(10) and gives r a lift-to-contact whereas in T-AC, the second lift would only be a lift-to-baulk.

No matter what else he does, u can improve k's prospects by Peeling k at h(7). This Peel will eliminate one lift-hoop and increase k's lead from 6 to 7 hoops. There are multiple opportunities for this Peel, with low risk attempts W-h(10) and W-h(11).

<u>A 2-on-1 Endgame?</u> A NZ-TPO almost always involves pegging out two balls. But, in COAC u has one other interesting option – to peg-out y, but not u – and then set a contact-leave as discussed above for a TPO. This is a more interesting and relevant option in COAC than in T-AC. The 2-ball team has an advantage due to the ever-present restrictions of CO. In the 1-ball game, the lift to contact when k scores h(10) would diminish the advantage of a 6 or 7-hoop lead.

The 2-on-1 Endgame

It is important to remember two things: (i) Running a multiple-hoop, 3-ball break in CO requires repeated L&Hs. These can be challenging and call into question the feasibility and wisdom of attempting extended 3-ball breaks. (ii) In a 2-on-1 endgame in which y has been pegged out, the 1-ball team (r) is at a disadvantage in COAC relative to his position in T-AC. In COAC, because of color-order, r essentially needs to roquet u first in order to have much of a chance of establishing any kind of rush or break.

Would u/k – the 2-Ball Team – prefer to have u or k for the peg? Clearly any differences are attributable to CO. So, the question becomes: If y is pegged-out and r is the remaining Oppo-Ball – the 1-Ball Team – do u/k have a better chance of winning the 2-on-1 endgame if their peg-ball is k or if it is u? We believe that the situation favors k over u but there are pros and cons of each:

<u>k plays</u>: r is a line-ball in the DSL in <u>Figure XI.1</u>, As such, u/k would favor playing k for ease of getting a rush on (y) after a hit-in on r. Then, after the peg-out of y, the back-ball (u) has his Partner (k), the peg-ball, and the Before-Ball (r) left in the game. That way if Oppo shoots and misses at the two of them, the back-ball (u) can hit Oppo (r) first and send it to reception, or away somewhere else, while getting a rush on Partner (k) to his Current-Hoop. u will benefit by setting traps and can immediately and severely negatively impact r's chances simply by wiring itself from r, either using a hoop or by hiding behind k. This scenario has an easier start to the TPO and in the 2-on-1 it leads to more offense (from traps) and better defense (more likely to wire r on u).

u plays: If u does the TPO on y and leaves k and r for h(1) with u on peg, then k can roquet Partner (u) and play a 2-ball break up to where the After-Partner Ball (r) is hiding. Then k can send u to Reception and use r in CO to play a safe L&H (sending Oppo far away) while trying to establish a CO 3-ball break, without having to entice and survive a hit-in attempt. If this works then the all-important hoop shots within it will be with partner (u) as reception ball, giving an element of comfort to k in case it is faced with a difficult hoop from the L&H approach. Additionally, if u/k prefers to play fully wired leaves and build their own offense instead of relying on traps, u would be the better ball to play the TPO.

The Impact of CO on Potential Lifts: The 1-Ball team will receive at least one and may receive up to three lifts during a 2-on-1 Pegged-out Endgame. CO impacts all of them.

The first Lift: This lift comes with the territory because, in pegging out y, k makes h(7) and h(10). r's turn starts with a lift-to-contact in both T-AC and COAC. However, in COAC, because of CO, r can only use both u and k if he goes to u first and then to k. Assuming k sets the leave shown in Figure XI.3, r will go to u and roll to h(1), skipping improving the position of k. For r to get going in COAC, he will need to make h(1) with only u and then roquet k before attempting a L&H at h(2). Rushing k closer to h(2) would be easier if k's position could have been improved at the start of the turn but it cannot – a cost of CO. However, k's positioning in c2 is still in a (relatively) convenient place for r to attempt a L&H and get position at h(2). Taking a step back, and with CO firmly in mind, we offer Figure XI.4 as an alternative COAC-specific TPO leave option, which eliminates this L&H possibility, and virtually forces r to make h(1) and h(2) off u if it wants to establish its break. Compare Figures XI.21 and XI.22.

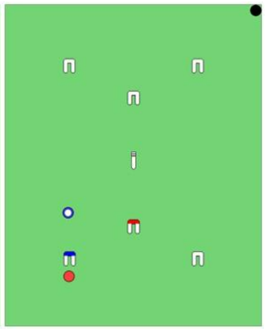
The Second Lift: This lift comes after the back-ball makes h(7)**.** r gets a lift-to-baulk in both T-AC and COAC. But, as with play of the 2nd ball in the opening of a COAC game (see Chapter X above), Starting from Figure XI.23, it may be possible for u to make h(7) and then roll with k to the North Boundary, Figure XI.24 or the South Boundary (not shown) such that after the lift r will be able to see/roquet k, but not u. Additionally, u can be less careful with what he does with k, knowing r needs to go to u first.

First Lift

T-AC

XI.21

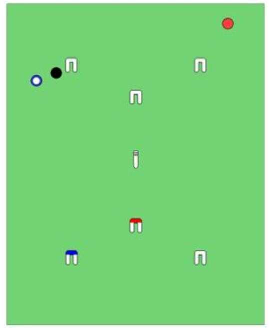
COAC



XI.22

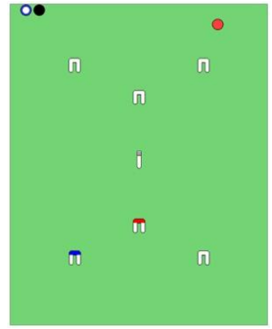
Second Lift

T-AC



XI.23

COAC



XI.24

Third Lift

T-AC

XI.25

COAC

XI.26

The Third Lift: This lift comes after the back-ball makes h(10): In T-AC, the 1-ball team (r) gets a lift-to-Baulk. However, in COAC, it is upgraded to a lift-to-contact! This is a significant benefit that is made more interesting because it plays out in the context of CO. Consider Figure XI.25 and XI.26. In both cases it is u/k to play and u is for h(10). In T-AC, r can lurk around hoping for a shot on u/k but has to fear giving u a chance at a break. In COAC r may consider lurking in corner 3, protected from a L&H by CO.

Chapter XII: PEELING MULTIPLE BALLS

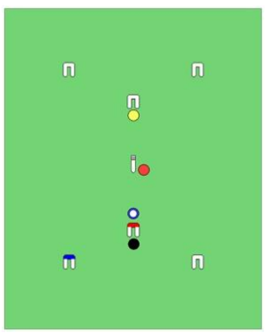
Up to now I have been considering the important but relatively unexciting subject of how to avoid errors. Part VI concerns situations in which by using a little imagination you can conjure peels out of nothing. In short, it is time to have some fun.
Wylie, Page 61.

We start by showing that if the balls start in CO at h(i), then it is possible to peel any one of them using 2HP, be it R(i), V(i), or P(i+1).

In the panel of figures below, k is Striker and is for h(5). Our intent is to peel u at h(10) letting u start with any of the functions at h(5): at R(5), Figure XII.1, at V(5), Figure XII.2 or at P(6), Figure XII.3. The trick is to use different Procedures – STANDARD, REPEAT, or EXPEDITE – to progress to a common position at h(6), Figure XII.4, where y is R(6), u is V(6,10), r is E(7,10). From here the peel is completed with a STANDARD, Figure XII.5.

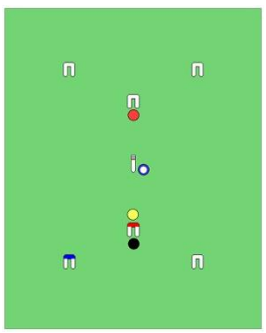
Start at h(5) with

u: R(5)
use STANDARD



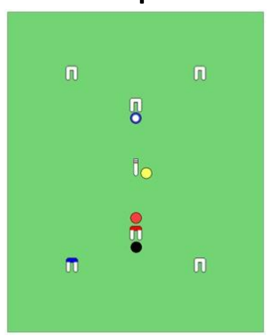
XII.1 – h(5)

u: V(5)
use REPEAT



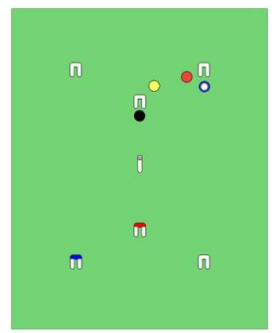
XII.2 – h(5)

u: P(6)
use Expedite



XII.3 – h(5)

Get to h(6) with
y: R(6)
u: V(6,10), r: E(7,10)



XII.4 – h(6)

Peel with STANDARD
r: R(7)
y: V(7), u: M(8,10)

XII.5 – h(7)

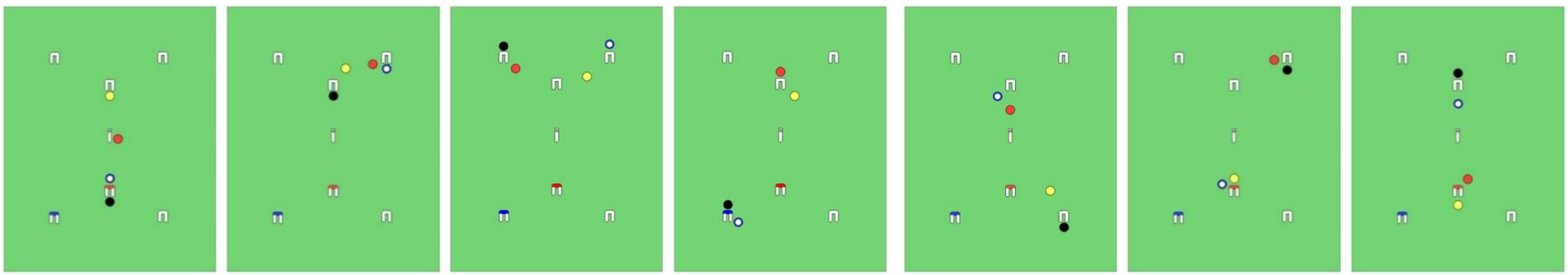
Each 2HP cycle is independent. Therefore knowing the ball we want to peel next, be it R, V, or P can be accomplished.

We will now document two special cases of 2HP peels – what we call the CO triple-peel and the CO Reverse triple-Peel.

The CO Triple-Peel – Peeling u at h(10), r at h(11), and y at h(12)
Completed 2HP using only STANDARDs

<u>Figures XII.6 – XII.12</u> present a CO Triple-Peel. k starts off in <u>Figure XII.6</u> as the Striker and is in position to make h(5). u is R(5), r is V(5), and y is P(6). From here all three peels are done as 2HP Transit-Peels. k will run a CO Triple-Peel peeling u at h(10), r at h(11), y at h(12), and then returns to his break. We will show that, while like the 2HP from T-AC, there is a difference in COAC, the former Peelee is Misplaced and must be moved ball-to-ball to the desired Pioneer-Position.

Start	STANDARD	Peel u @h(10) STANDARD	STANDARD	Peel r @h(11) STANDARD	STANDARD	Peel k@h(12) STANDARD



XII.6 – h(5)	XII.7 – h(6)	XII.8 – h(7)	XII.9 – h(8)	XII.10 – h(9)	XII.11 – h(10)	XII.12 – h(11)

<u>Figure XII.6</u>: *<u>Starting the 2HP Peel of u at h(10)</u>:* k makes h(5) and goes to u. k sends u to peel position at h(10), from R(5) to V(6,10) – [CO is (u, r, y)] – as k goes to r. k sends r to Escape-Position from h(10) to h(7), from V(5) to E(7,10), as k goes to y. k sends y from P(6) to R(6) as k goes to position at h(6), <u>Figure XII.7</u>, STANDARD.

<u>Figure XII.7</u>: k makes h(6) and goes to y. k sends y from R(6) to helper position V(7) – [CO is (y, u, r)] – as k goes to u. *k peels u at h(10)*, moving it from V(6,10) to M(8,10) – a Misplaced-Pioneer – as k goes to r. k escapes with r to h(7), rushing r from E(7,10) to P(7) and croquets r to R(7) as k goes to position at h(7), <u>Figure XII.8</u>, STANDARD. *k could have sent y to h(8). But that would not work here because y is needed as the Escape-Ball for r, the next Peelee in the CO Triple. It is u that will be used to make h(8) and it is Misplaced. y is placed close to u, as a Helper-Ball.*

Figure XII.8: ***Starting the 2HP Peel of r at h(11):*** k makes h(7) and goes to r. k sends r to peel position at h(11), from R(7) to V(8,11) – [CO is (r, y, u)] – as k goes to y. k sends y to Escape-Position from h(11) to h(9), from V(7) to E(9,11), as k goes to u. k rushes u from M(8,10) to P(8) and sends u to R(8) as k goes to position at h(8), Figure XII.9, STANDARD.

Figure XII.9: k makes h(8) and goes to u. k sends u from R(8) to V(9) as a helper ball near h(11) – [CO is (u, r, y)] – as k goes to r. k *peels r at h(11)*, moving it from V(8,11) to M(10,11) as k gets the rush on y. k escapes with y to h(9), rushing y from E(9,11) to P(9) and sending y to R(9) as k goes to position at h(9), Figure XII.10, STANDARD.

Figure XII.10: *Starting The 2HP Peel of y at h(12):* k makes h(9) and goes to y. k sends y to peel position at h(12), from R(9) to V(10,12) – [CO is (y, u, r)] – as k goes to u. k sends u from V(9) to E(11,12) as k goes to r. k rushes r from M(10,11) to P(10) and sends r to R(10) as k goes to position at h(10), Figure XII.11, STANDARD.

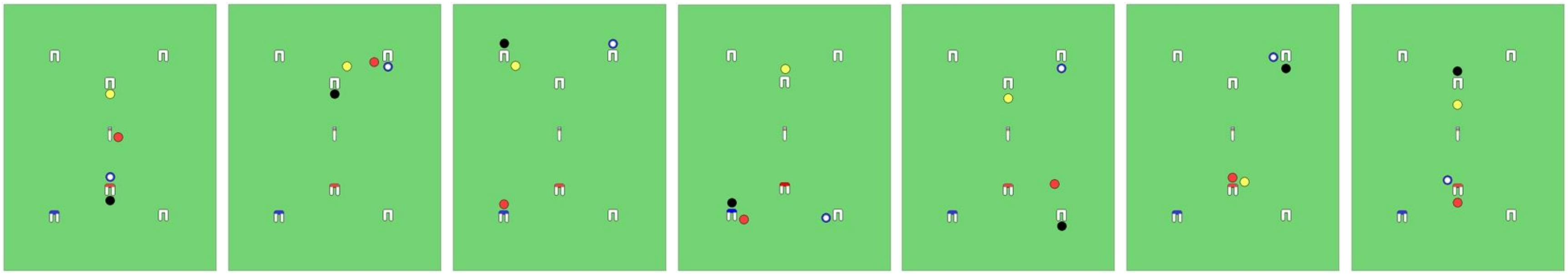
Figure XII.11: k makes h(10) and goes to r. k sends r from R(10) to V(11) – [CO is (r, y, u)] – as k goes to y. *k peels y at h(12)*, sending y from V(10,12) to P(12) as k goes to u. k rushes u from E(11,12) to P(11) and sends it to R(11) as k goes to position at h(11), Figure XII.12, STANDARD.

The Reverse CO Triple-Peel – Peeling u at h(10), y at h(11), and r at h(12)
Completed 2HP Alternating STANDARDs with REPEATs

Figure XII.13: *Starting the 2HP Peel of u at h(10):* k makes h(5) and goes to u. k sends u to peel position at h(10), from R(5) to V(6,10) – [CO is (u, r, y)] – as k goes to r. k sends r to Escape-Position from h(10) to h(7), from V(5) to E(7,10), as k goes to y. k sends y from P(6) to R(6) as k goes to position at h(6), Figure XII.14, STANDARD. *Note that Figures XII.13 and XII.14 repeat Figures XII.6 and XII.7.*

Figure XII.14: k makes h(6) and goes to y. k sends y from R(6) to R(7) – [CO is (y, u, r)] – as k goes to u. *k peels u at h(10)*, from V(6,10) to V(7) as k goes to r. Then with a very long L&H, k sends r from E(7,10) to P(8) as k goes to position at h(7), Figure XII.15, REPEAT.

Start	STANDARD	Peel u@h(10) REPEAT	STANDARD	Peel y @h(11) REPEAT	STANDARD	Peel r@h(12) STANDARD



XII.13 – h(5)	XII.14 – h(6)	XII.15 – h(7)	XII.16 – h(8)	XII.17 – h(9)	XII.18 – h(10)	XII.19 – h(11)

Figure XII.15: *Starting the 2HP Peel of y at h(11):* k makes h(7) and goes to y. k sends y to peel position at h(11), from R(7) to V(8,11) – [CO is (y, u, r)] – as k goes to u. k sends u from V(7) to P9 as k goes to r. k sends r from P(8) to R(8) as k goes to position at h(8), Figure XII.16, STANDARD. *This example and the ones that follow are designed to show general concepts and do not dwell on logical refinements. For example, Figure XII.15 shows a very long (and impractical) L&H. It is much easier to send r to E(8,11) at h(6) rather than all the way to P(8).*

Figure XII.16: k makes h(8) and goes to r. k sends r from R(8) to R(9) – [CO is (r, y, u)] – as k goes to y. *k peels y at h(11)*, moving it from V(8,11) to V(9) as k goes to u. With a L&H, k sends u from P(9) to P(10) as k goes to position at h(9), Figure XII.17, REPEAT.

Figure XII.17: *Starting the 2HP Peel of r at h(12):* k makes h(9) and goes to r. k sends r from R(9) to V(10,12) – [CO is (r, y, u)] – as k goes to y. k sends y from V(9) to E(11,12) as k goes to u. k sends u from P(10) to R(10) as k goes to position at h(10), Figure XII.18, STANDARD.

Figure XII.18: k makes h(10) and goes to u. k sends u from R(10) to V(11,12) – [CO is (u, r, y)] – as k goes to r. k peels r at h(12), sending r from V(10,12) to P(12) as k goes to y. k escapes with y to h(11), croquets y to R(11) as k goes to position at h(11), Figure XII.19, STANDARD.

Moving from 2HP to HP?

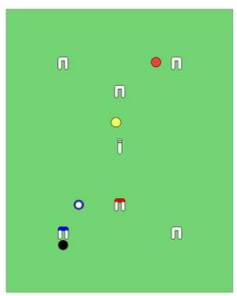
In Chapter VI we used REPEATs to generate a series of HP peels on a single ball. Is there a strategy that works for peeling multiple balls in any order, after single hoops while maintaining CO? Sadly, a simple thought experiment reveals that the answer is no:

Suppose u has just been peeled by k at h(10). The goal is to make k's next hoop, call it h(2), and then immediately peel y. Sadly this is not possible at all hoops. For example, suppose y's peeling hoop is h(4). k can get to h(2) after the peel of u at h(10) using r, the Escape-Ball. After making h(2) k will likely go to r, setting CO as (r, y, u) and then to y. y can be rushed to h(4) and peeled but there is no realistic way to continue k's break because the Escape Ball for y is u – u follows y in CO – and u is north of h(10) and not available.

While HP does not always work in general in COAC, to our surprise HP does work for a series of peels executed in CO if Striker uses repeated applications of EXPEDITE! This is true for peels anywhere on the lawn and also for peels done straight.

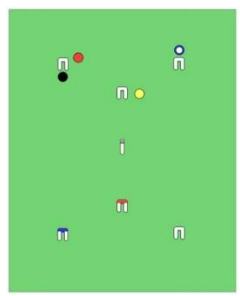
The HP CO Triple-Peel – Peeling u at h(10), r at h(11), and y at h(12)
While k makes h(1), h(2) and h(3) using EXPEDITEs

Start



XII.20 – h(1)

Peel u@h(10)
EXPEDITE

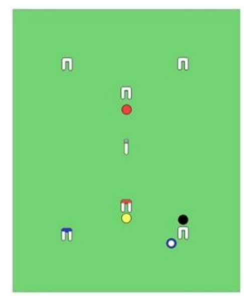


XII.21 – h(2)

Peel r@h(11)
EXPEDITE

XII.22 – h(3)

Peel y@h(12)
3-FIX



XII.23 – h(4)

We start the analysis in <u>Figure XII.20</u> with k in position to make h(1), u is R(1), r is V(1) and y is anywhere on the lawn. k will run a CO Rainbow Triple-Peel, peeling u at h(10), r at h(11), y at h(12), and then return to his break.

Figure XII.20: k makes h(1) and goes to u. k rushes u to peel position at h(10) and peels u there, moving it to P(3)[58] – [CO is (u, r, y)] – as k goes to r. k moves r from V(1) to R(2) as k goes to y. Then, with a L&H, k sends y from P(2) to V(2,11) as k goes to position at h(2), Figure XII.21, EXPEDITE.

From Figure XII.21: k makes h(2) and goes to r. k rushes r to h(11) and peels r there, moving r from R(2) to V(3) – [CO is (r, y, u)] – as k goes to y. k moves y from V(2,11) to R(3) as k goes to u. Then, with a long L&H, k sends u from P(3) to E(4,12) as k goes to position at h(3), Figure XII.22, EXPEDITE.

Figure XII.22: k makes h(3) and goes to y. k rushes y to h(12), and peels y – [CO is (y, u, r)] – as k goes to u. k rushes u from E(4,12) to P(4) and sends u to R(4) as k goes to position at h(4), Figure XII.23, 3-FIX.

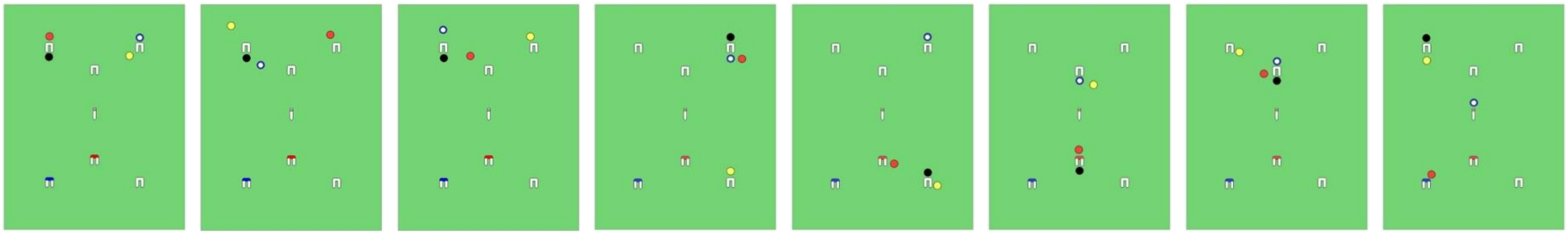
Figure XII.23, k has completed the peeling sequence and returned to the break using 3-FIX. Alternatively, k could have continued to employ EXPEDITE while engaging in additional peels in CO.

[58] Conveniently in this example P(3) and E(3,3) are the same.

XIII: TP AND DSL/NSL SUMMARY SHEETS

THE STANDARD-TRIPLE

STANDARD | EXPEDITE | REPEAT | READY TO PEEL | h(10) A-h(3) STANDARD | STANDARD | STANDARD | h(11) A-h(6) STANDARD



XIII.1 (r, y, u) | XIII.2 (y, u, r) | XIII.3 (u, r, y) | XIII.4 – h(3) | XIII.5 – h(4) | XIII.6 – h(5) | XIII.7 – h(6) | XIII.8 – h(7)

With k as Striker sitting one hoop before the Back-Peel, here at h(2), each of the 3 in-sync COs shown in Figures XIII.1 – XIII.3 sets-up for the Peel, here h(10) A-h(3), Figure XIII.4, using the Procedure listed *above* the relevant figure. One STANDARD completes the 1st Peel, Figure XIII.5, and 3 more complete the 2nd Peel, h(11) A-h(6), Figures XIII.6 – XIII.8.

The h(12) Peel: In T-AC this Peel can be tried W-h(8) but is usually done W-h(9). In COAC W-h(9) requires back-to-back REPEATs from h(7) – including an effort toward Peeling W-h(8) – which is pretty risky for a Striker who is "on-time." We prefer to have k get to h(8) using TAC and attempt the h(12) Peel W-h(8) along the way. If the Peel gets done, then great! The finish (not shown) is easy.

h(12) Peel W-h(8) fails TAC | 3-FIX | TAC | 3-L&H | h(12) Peel s-h(12) REPEAT

XIII.9 – h(8) | XIII.10 – h(9) | XIII.11 – h(10) | XIII.12 – h(11) | XIII.13 – h(12)

If the Peel fails, Figure XIII.9, then Striker will be at a decision point. No matter what, he will use 3-FIX to restore CO but will have a choice of sending r to E(10,12) to set-up for the attempt at the h(12) Peel W-h(10), or sending r to P(10) in advance of a Straight-Peel at h(12) S-h(12). We recommend and show the latter, having k do this using TAC, Figure XIII.10. k makes h(9), sends y to h(11), adjusts u at h(12), and proceeds to r at h(10) once again using TAC, Figure XIII.11. Striker progresses to h(11) using 3-L&H, Figure XIII.12, restoring the desired CO. Finally, the h(12) Peel is completed S-h(12) using REPEAT, Figure XIII.13, with a standard peg-out to follow.

The Delayed-Triple-Peel: h(10) Peeled W-h(6)

k starts at h(5), Figure XIII.14, set-up to try the h(10) Peel W-h(6). In T-AC, y is usually sent to P(7), but in COAC it is sent to R(6) with a REPEAT. Suppose the Peel attempt succeeds, Figure XIII.15. *This is the decision point*! One way to proceed, often done in T-AC, is to send u to P(8). This also works well in COAC, using a STANDARD to reach Figure XIII.16. This step is made easier if, once the Peel succeeds W-h(6), then from Figure XIII.14, r is sent with a short L&H toward P(7), Figure XIII.15.

START	h(10) W-h(6) REPEAT	STANDARD	STANDARD	STANDARD	h(11) W-h(10) REPEAT	STANDARD	h(12) S-h(12) REPEAT

XIII.14 – h(5)	XIII.15 – h(6)	XIII.16 – h(7)	XIII.17 – h(8)	XIII.18 – h(9)	XIII.19 – h(10)	XIII.20 – h(11)	XIII.21 – h(12)

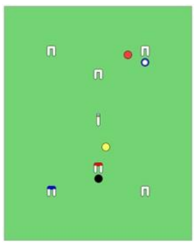
Then k uses two STANDARDs to set-up a classic Delayed-Double, Figures XIII.17 and XIII.18, with a risk-free chance to complete the h(11) Peel A-h(8). A REPEAT completes the h(11) Peel W-h(10) and allows access to y after h(10), Figure XIII.19. A STANDARD is used to reach h(11), Figure XIII.20 and a REPEAT to complete the h(12) Peel S-h(12) and to set-up for the peg-out to follow, Figure XIII.21.

"Pushing" the Delayed-Triple: In T-AC, with the h(10) Peel completed W-h(6), k can attempt the h(11) Peel with "death-rolls" W-h(8) or W-h(9), the former in an attempt to complete the h(12) Peel before S-h(12). In COAC, starting at h(5), Figure XIII.22, and using REPEAT to complete the Peel at h(10) W-h(6), Figure XIII.23, it is possible to attempt the h(11) Peel W-h(7) or W-h(8) instead of W-h(10). But the gain is minimal and almost certainly not worth the extra effort and risk – Striker gets a single try on the h(12) Peel W-h(10) which is complicated by a rush on Peelee from h(11) to h(12). If the Peel fails, then Striker must wait and try it S-h(12).

While it is possible to complete the h(11) Peel W-h(7) [i.e., in one hoop, HP, from h(6)], we recommend you give up on that attempt and settle for readying Peelee to be peeled on the next attempt – use REPEAT to reach h(7) from h(6), Figure XIII.24, where k focuses on placing u and r for subsequent use and not the immediate Peel. k makes h(7), sends y to P(9), and then turns to Peeling u at h(11) W-h(8) and rushing r to h(8). This is all done with TAC, Figure XIII.25. Mission accomplished, but the balls are out of CO. 3-FIX is used to go to h(9), restore CO and to send r as the escape ball to h(10), Figure XIII.26. *Note that u is left dangling at h(11)*!

Striker makes h(9), sends y to P(11), and goes to u. Then k wants to rush u to h(12), Peel it W-h(10), and escape to h(10) with r, using TAC, Figure XIII.27. *This is a tall order!* If it works then 3-BALL progresses Striker to h(11), Figure XIII.28. Finally, a STANDARD sets-up Striker at h(12) and arranges the correct CO for the peg-out to follow, Figure XIII.29. If the peel fails, then Striker can still set-up for the h(12) Peel S-h(12). Here Striker(not shown) uses 3-L&H for h(11) and then REPEAT for the S-h(12) Peel attempt.

START



XIII.22 – h(5)

h(10) W-h(6)
REPEAT

XIII.23 – h(6)

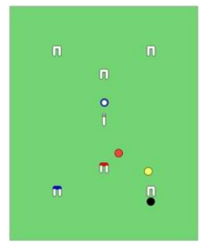
REPEAT

XIII.24 – h(7)

h(11) W-h(8)
TAC

XIII.25 – h(8)

3-FIX

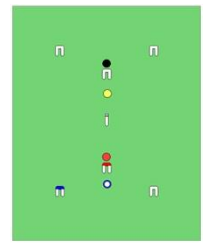


XIII.26 – h(9)

h(12) W-h(10)
TAC

XIII.27 – h(10)

3-BALL



XIII.28 – h(11)

STANDARD

XIII.29 – h(12)

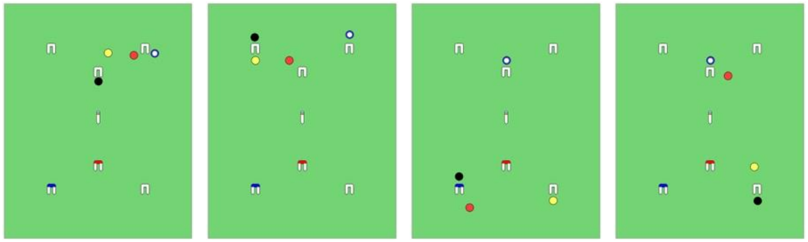
"Delayed"-Triples : h(10) Peeled W-h(7), W-h(8) or Later

h(10) Peeled W-h(7): Figure XIII.30 shows the W-h(6) Peel failing, then succeeding W-h(7), REPEAT, Figure XIII.31. The key play to h(8) is using TAC to send y "toward" h(9), getting u "toward" Peel position at h(11), *and for sure* (!) getting a good rush on r to h(8), Figure XIII.32. [r is shown in Figure XIII.31 positioned north of where it would be if Striker wanted to try the Peel W-h(7). This attempt is abandoned to get a better rush on r to h(8)]. TAC takes the balls out of CO. Striker "burns a hoop" restoring CO using 3-FIX, Figure XIII.33, and proceeds with a Delayed-Double.

h(10) Peeled W-h(8): Figure XIII.34 shows the Peel at h(10) W-h(7) failing, then succeeding W-h(8), Figure XIII.35. Striker used TAC for the Peel (REPEAT here is unrealistic) and the escape to h(8). Again, Striker must burn a hoop with 3-FIX to restore CO, Figure XIII.36. It is still possible to complete the h(11) Peel W-h(10) as part of a Delayed-Double, but the Peel must be completed in one hoop – HP – k rushes y to the north boundary gaining a rush on u to h(11) and then k tries the peel going to r. Striker will know if the Peel fails before placing r and should use STANDARD instead of REPEAT if it fails, so that Striker can go first to r and then to y before rushing u to h(11), in a Straight-Double, Figure XIII.37.

h(10) W-h(7)

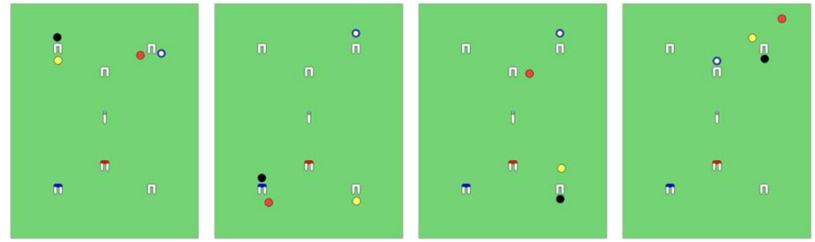
START | **REPEAT** | **TAC** | **3-FIX**



XIII.30 – h(6) | **XIII.31 – h(7)** | **XIII.32 – h(8)** | **XIII.33 – h(9)**

h(10) W-h(8)

START | **TAC** | **3-FIX** | **STANDARD**



XIII.34 – h(7) | **XIII.35 – h(8)** | **XIII.36 – h(9)** | **XIII.37 – h(10)**

h(10) Peeled W-h(9) is a rare occurrence that is not fully described in this book. It can be followed by a fortunate Delayed-Double, h(11) W-h(10) but more typically a Straight-Double. Breaking-down in either case grants contact, assuming h(10) is made. If you end up attempting the **h(10) Peeled W-h(10)**, then you are in for a Straight-Triple attempt, giving contact if it fails.

SETTING A DSL

Figures XIII.38 – XIII.40 show three in-sync COs at h(5) with u as Striker. In each case, the Procedure listed above the figure can be used to set the stage for a DSL by moving the balls to the positions shown at h(6), Figure XIII.41. From here, four Standards yield a DSL. k will take over as Striker if r/y miss. Note two things: (i) With k as Striker, COAC has the ball at the peg be the After-Partner ball (r) and the ball toward h(2) be the Before-Partner ball y; and (ii) k has a rush on u to h(1) not to r (to avoid r finessing to c3).

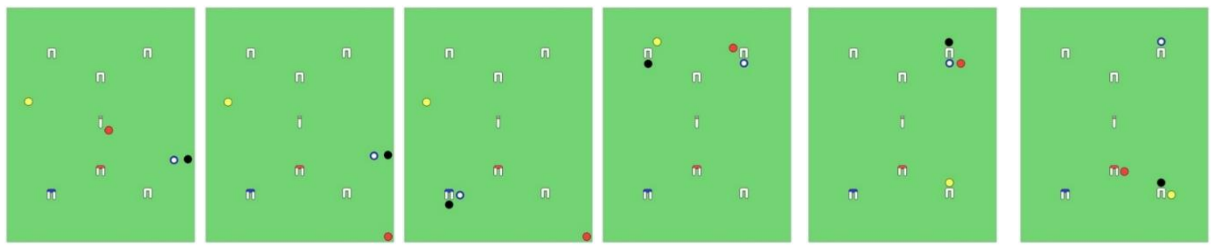
STANDARD | **EXPEDITE** | **REPEAT** | **RESULT** | **STANDARD** | **STANDARD** | **STANDARD** | **STANDARD – DSL**

XIII.38 – h(5) | **XIII.39 – h(5)** | **XIII.40 – h(5)** | **XIII.41 – h(6)** | **XIII.42 – h(7)** | **XIII.43 – h(8)** | **XIII.44 – h(9)** | **XIII.45 – h(1)**

STARTING A TRIPLE FROM A DSL

If r shoots and k is ok with Hogan-Rolls: From a DSL, Figure XIII.46 and a miss by r to c4, Figure XIII.47, k can 2-BALL to h(1), Figure XIII.48, Hogan-Roll in a STANDARD to h(2), Figure XIII.49, EXPEDITE to h(3) to set-up the h(10) Peel A-h(3), Figure XIII.50, complete it with a STANDARD, Figure XIII.51, and then continue as discussed earlier.

DSL | **r to c4** | **2-BALL** | **Hogan-Roll STANDARD** | **EXPEDITE** | **h(10) A-h(3) STANDARD**



XIII.46 | **XIII.47** | **XIII.48 – h(1)** | **XIII.49 – h(2)** | **XIII.50 – h(3)** | **XIII.51 – h(4)**

If k is not ok with Hogan-Rolls: k has two choices: (i) k can complete the h(10) Peel W-h(5) and rejoining a Standard-Triple by completing the h(11) Peel A-h(6). From Figure XIII.52, k makes h(1), sends u to h(3) going to r, takes-off from r to y and sets-up at h(2), Figure XIII.53, using TAC. 3-FIX takes k to h(3) and restores CO while sending y to P(4), Figure XIII.54. k makes h(3), leave u at h(10), takes off to r, sends r to E(5,10), and sets up with y at h(4), STANDARD, Figure XIII.55. The h(10) Peel A-h(5) follows with a STANDARD, Figure XIII.56. One more STANDARD (not shown) suffice to complete the h(11) Peel A-h(6). (ii) In the alternative, k can choose to abandon a Standard and join a Delayed-Triple. Here, k proceeds from Figure XIII.54 to Figure XIII.57 using LIMITED and then 3-FIX to maneuver the balls into position for the h(10) Peel W-h(6), Figure XIII.58.

Start | **Take-off TAC** | **3-FIX** | **STANDARD** | **h(10) W-h(5) STANDARD** | **LIMITED** | **3-FIX**

XIII.52 – h(1) | **XIII.53 – h(2)** | **III.54 – h(3)** | **XIII.55 – h(4)** | **XIII.56 – h(5)** | **XIII.57 – h(6)** | **XIII.58 – h(7)**

If y Shoots: k will usually settle for a Delayed-Triple as the Standard requires a difficult full-roll sending y to R(2) from c4.

For the Delayed, after y misses into c4, Figure XIII.59, k will use 3-BALL to progress to h(1), leaving y in c4, Figure XIII.60. TAC progress k to h(2), again leaving y in c4, Figure XIII.61. 3-FIX moves k to h(4), restoring CO but still leaving y in c4, Figure XIII.62. Then three STANDARDS can be used to complete the h(10) Peel W-h(6), Figures XIII.63 – XIII.65.

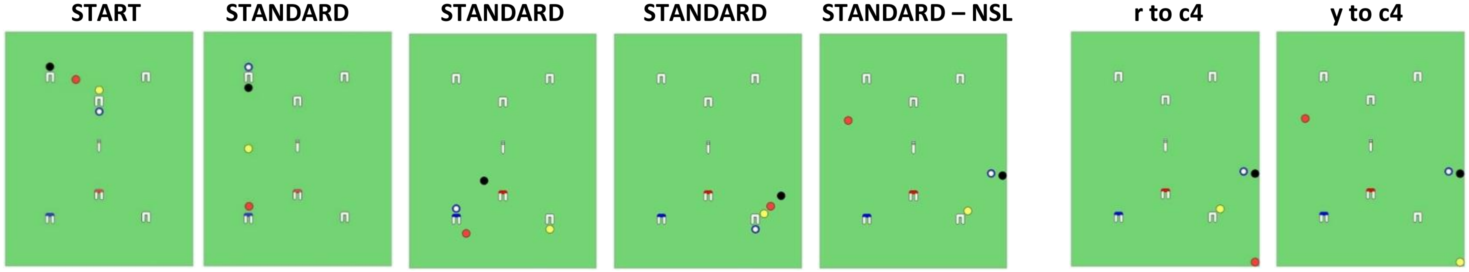
y shoots | **3-BALL** | **TAC** | **3-FIX** | **STANDARD** | **STANDARD** | **h(10) W-h(6) STANDARD**

XIII.59 | **XIII.60 – h(1)** | **XIII.61– h(2)** | **XIII.62 – h(3)** | **XIII.63 – h(4)** | **XIII.64 – h(5)** | **XIII.65 – h(6)**

SETTING AND PLAYING FROM AN NSL

If k will be the Striker running the Peeling turn, then in COAC, an NSL can lead to a Standard-Triple if y is hampered at h(4), Figure XIII.69 – not so if r is at h(4), not shown. The starting point of the DSL discussed above, Figure XIII.41, is repeated as the starting point of the NSL. Again, four STANDARDs produce the desired result, Figures XIII.66 – XIII.69. Note that k's rush on u is directed toward h(2) not h(1).

START | **STANDARD** | **STANDARD** | **STANDARD** | **STANDARD – NSL** | **r to c4** | **y to c4**



XIII.41 – h(6) | **XIII.66 – h(7)** | **XIII.67 – h(8)** | **XIII.68 – h(9)** | **XIII.69 – h(1)** | **XIII.70** | **XIII.71**

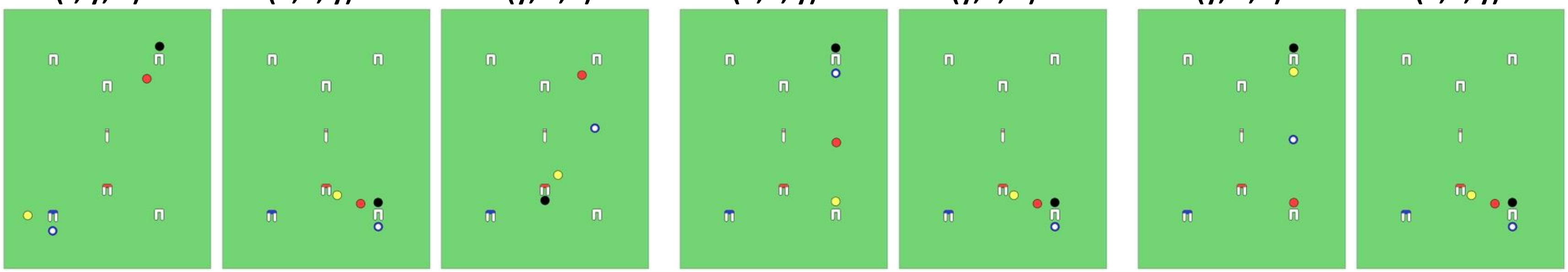
If r shoot and misses to c4, Figure XIII.70, then k taps u, goes to r, sends r back to P(2), makes h(1) with y, starting a Standard-Triple. If y shoots and misses to c4, Figure XIII.71, then k will rush u to h(2) and take r to h(1), with a Delayed-Triple in the sites.

ADDED INFO #1: (Chapter VI): Special Properties of Back-Peels

This Appendix discusses two things that make Back-Peels unique: (i) In CO Back-Peels require only two hoops to complete, and (ii): Back-Peels can be modified into Transit-Peels affording an adjustment on Peelee**.**

The h(9)-Peel completed A-h(4)

Start (r, y, u)	STANDARD (u, r, y)	STANDARD (y, u, r)	Start (u, r, y)	REPEAT (y, r, u)	Start (y, u, r)	EXPEDITE (u, r, y)



AI1.1 – h(3)	AI1.2 – h(4)	AI1.3 – h(5)	AI1.4 – h(3)	AI1.2 – h(4)	AI1.5 – h(3)	AI1.2 – h(4)

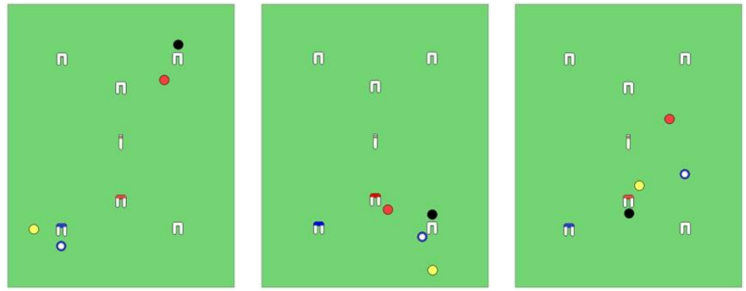
Back-Peels only Require Two Hoops to Complete: This section shows that a Back-Peel can follow a Transit-Peel in just 2 hoops, which is part of a more general statement that, no matter what the CO, a Back-Peel can always be executed in two hoops. Figure AI1.1 is drawn from a Sextuple attempt. Striker (k) has just completed the h(8)-Peel W-h(3). In order to keep his Sextuple "well timed", Striker would like to complete the h(9)-Peel either A-h(4) or W-h(5).

Striker is able to progress (with some good shots!) from Figure AI1.1 to Figure AI1.2 by rushing u from M(4,8) to P(4) and then croqueting it to R(4) using the STANDARD Procedure. k is ready to make h(4) and then complete the h(9)-Peel as a Back-Peel [i.e. A-h(4)] as shown in Figure AI1.3, STANDARD. *This keeps Striker's Sextuple hopes alive.*

Figures AI1.4 and AI1.5 show other possible COs at h(3). Different Procedures (REPEAT and EXPEDITE) can set the balls up for the same Back-Peel, Figure AI1.2 (as shown again), and completing the peel with a STANDARD, Figure AI1.3. *Thus, Back-Peels can be accomplished in just two hoops (not shown again).*

The h(9)-Peel Completed W-h(5)

Start (r, y, u) | **EXPEDITE (u, r, y)** | **REPEAT (y, u, r)**



AI1.6 – h(3) | **AI1.7 – h(4)** | **AI1.8 – h(5)**

Back-Peels can be modified into Transit-Peels affording an adjustment on Peelee: Figure AI1.6 reprises Figure AI1.1. Here k is confident of moving r, y, and u to h(4) but not sure he will get u in peel position at the same time. He would like to use y as the Reception-Ball instead of u, and then, after making h(4), use y to gain an adjustment on u, as Pivot, before attempting the peel.

Let's do the Arithmetic: RB=u. k is at h(3), u is M(4,8), thus HAVE=P. In (j=1) one hoop k will be at h(4). We want u to be V(4). Thus, WANT=V. In (j=1) FS, HAVE will rotate from P to R→GET=R, GET+1=V, GET+2=P. WANT=GET+1 therefore an EXPEDITE is needed.

Figure AI1.6: k makes h(3) and goes to r. k sends r from R(3) to P(5) – [CO is (r, y, u)] – as k goes to y. k sends y from V(3) to R(4) as k goes to u. Then with a L&H k sends u from M(4,8) to V(5,9) as k goes to position at h(4), Figure AI1.7, EXPEDITE.

Figure AI1.7: ***The analysis is carried one more hoop to illustrate the adjustment***. k makes h(4) and goes to y. k sends y from R(4) to R(5) – [CO is (y, u, r)] – as k goes to u. k ADJUSTS u and peels u at h(9), W-h(5) as k goes to r. Then with a L&H, k sends r from E(5,9) to E(6,10) as k goes to position at h(5), Figure AI1.8, REPEAT. *Note that neither u nor r will likely be perfectly placed in Figure AI1.8 so the h(10)-Peel attempt W-h(6) may evolve into an attempt W-h(7).*

This panel of figures establishes that a Back-Peel A-h(4) that may be 'iffy" due to the placement of Peelee as the Reception-Ball, can be converted into a Transit-Peel where Peelee becomes the Pivot-Ball instead, affording an adjustment on Peelee before the peel.

ADDED INFO #2: (Chapter VII): Miscellaneous Plays Early in a Triple

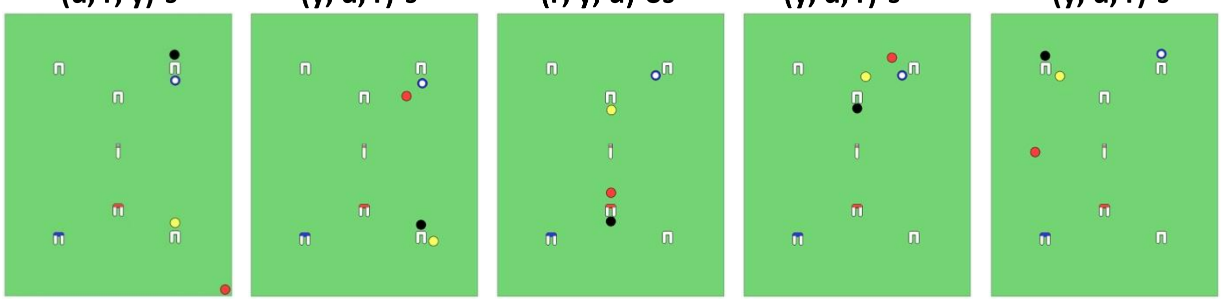
This note describes some plays in the pursuit of a Standard-Triple-Peel that are interesting but did not fit into the flow of Chapter VII. The information is divided into two parts: (1) plays when the AFTER-Ball (r) misses; and (2) plays when the BEFORE-Ball (y) misses.

1.. Miscellaneous Plays when the AFTER-Ball (r) Shoots from the DSL

If the h(10) peel attempt W-h(5) fails, can it be re-done W-h(7)? Yes: One difficulty with the h(10)-Peel W-h(5), is the need to send r accurately from c4 to be the escape ball at h(10) to h(5) – the play from <u>Figure AI2.1</u> to <u>Figure AI2.2</u>, where, in <u>Figure AI2.2</u>, r is assumed to be out of place. k can try the peel but must be willing to have it fail in order to obtain the rush on r to h(5) to maintain his break. Here is a way to do this that lets k try the peel, but, if he is forced to give it up, will convert the attempt W-h(5) to W-h(7).

Let's do the Arithmetic: Let RB=u. In <u>Figure AI2.2</u>, k is in position to make h(4), u is V(4,10), thus HAVE=V. k will try the h(10)-Peel W-h(5) but fears it will fail and wants to redo the peel as soon as possible. He first considers W-h(6). When k is for h(5) u will want to be V(5,10), thus, WANT=V. j=1, so in one FS, HAVE will rotate from V to P→GET=P, GET+1=R, and GET+2=V. WANT=GET+2 so an immediate REPEAT is called for.

START (u, r, y)-s	STANDARD (y, u, r)-s	<u>h(10) W-h(5) fails</u> TAC (r, y, u)-os	3-FIX (y, u, r)-s	<u>h(10) W-h(7) done</u> REPEAT (y, u, r)-s



AI2.1 – h(3)	AI2.2 – h(4)	AI2.3 – h(5)	AI2.4 – h(6)	AI2.5 – h(7)

This is impractical because the L&H is long and difficult. k considers trying the peel W-h(5) while ready to try it again W-h(7): When k is for h(6), u wants to be V(6,10). So, HAVE=V and WANT=V. j=2, so in two FS, HAVE rotates from V to R→GET=R, GET+1=V, and

GET+2=P. WANT=V, an EXPEDITE and a STANDARD are needed, or the equivalent. u is already near h(10) and is likely to remain there after the peel attempt W-h(5), so a useful equivalent for [EXPEDITE + STANDARD] is [TAC+ 3-FIX] which would not require moving/visiting u between h(5) and h(6).

Figure AI2.2: k makes h(4) and goes to y. k sends y from R(4) to P(6) – [CO is (y, u, r)] – as k goes to u. k roquets u, *but skips the peel attempt*, converting r from V(4,10) to V(5,10) going to r. k rushes r from E(5,10) to P(5) and then croquets r to R(5), as k goes to position at h(5), Figure AI2.3, TAC.

Figure AI2.3: k makes h(5) and goes to r. k sends r from R(5) to E(7,10) – [CO is (r, y, u)] – as k goes to y. k sends y from P(6) to R(6) as k goes to position at h(6), Figure AI2.4, 3-FIX.

Figure AI2.4: k makes h(6) and goes to y. k sends y from R(6) to R(7) – [CO is (y, u, r)] – as k goes to u. k peels u at h(10) W-h(7) converting u from V(6,10) to V(7,11) as k goes to r. Then with a simple L&H k sends r from E(7,10) to E(8,11), Figure AI2.5, REPEAT.

In T-AC, it is rare to see a peel attempt at h(10) W-h(5). Instead, out of Figure AI2.1, Striker might leave u in peel position at h(10) while taking-off to r. r is usually sent to be the Pioneer at h(5) as k goes to y at h(4). k makes h(4) with y, sends y to be E(6,10) going to u. k adjusts u and then takes off to r at h(5). k makes h(5) with r, goes to u, peels u W-h(6), and escapes to h(6) with y. This does not work in COAC because r is needed as the Escape-Ball to h(6), y won't do!

If the peel W-h(5) is unlikely to succeed, can it be postponed until W-h(6)? Let's do the Arithmetic: For Peeling W-h(6)**:** In Figure AI2.6, k is for h(3) and u is R(3). RB=k, thus, HAVE=R. In two hoops time Striker wants u to be V(5,10). Thus, WANT=V. j =2. In two FS, HAVE will rotate from R to P→GET=P, GET+1=R, and GET+2=V. WANT=GET+2. Therefore, over the next two hoops, k needs to execute a REPEAT and a STANDARD, or the equivalent.

Figure AI2.6: k makes h(3) and goes to u. k sends u from R(3) to R(4) – [CO is (u, r, y)] – as k goes to r in c4. k sends r from V(3) to V(4) as k goes to y. Then, with a simple L&H, k sends y from P(4) to P(5), as k goes to position at h(4), Figure AI2.7, REPEAT.

Figure AI2.7: k makes h(4) and goes to u. k sends u from R(4) to V(5,10) – [CO is (u, r, y)] – as k goes to r. k sends r from V(4) to E(6,10) as k goes to y. k sends y from P(5) to R(5) as k goes to position at h(5), Figure AI2.8, STANDARD.

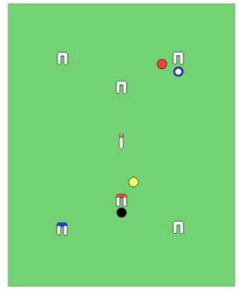
Start
(u, r, y)-s

AI2.6 – h(3)

REPEAT
(u, r, y)-s

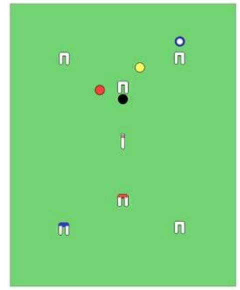
AI2.7 – h(4)

STANDARD
(y, u, r)-s



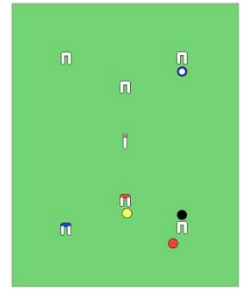
AI2.8 – h(5)

REPEAT
(y, u, r)-s



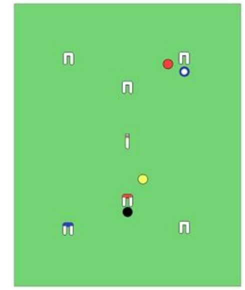
AI2.9 – h(6)

LIMITED
(r, k, y)-os



AI2.10 – h(4)

3-FIX
(y, u, r)-s



AI2.11 – h(5)

Figure AI2.8: k makes h(5) and goes to y. k sends y from R(5) to R(6) – [CO is (y, u, r)] – as k goes to u. k peels u, W-h(6), converting it from V(5,10) to V(6,11) as k goes to r. Then, with a simple L&H, k sends r from E(6,10) to E(7,11) as k goes to position at h(6), Figure AI2.9, REPEAT (explained later).

Let's revisit play from Figure AI2.6 to Figure AI2.8. [REPEAT + STANDARD] was used. It worked, but REPEAT sent u from its position at h(10) in Figure AI2.6 all the way down to h(4), as R(4), in Figure AI2.7, only to send it back again to h(5), as V(5,10) with STANDARD to reach Figure AI2.8! Did this need to happen? There are alternatives to [REPEAT + STANDARD]. The most obvious being: (i): [STANDARD + REPEAT], and (ii): [EXPEDITE + EXPEDITE]. But both involve difficult L&Hs. Now consider a third possibility: [LIMITED + 3-FIX]. Using this alternative, u is left at h(10). Striker returns to it W-h(6), skipping u during play to h(5)!

Figure AI2.6: k makes h(3) and goes to u. k roquets u and leaves it in peel position, moving u from R(3) to V(4,10) – [CO is (u, r, y)] – as k goes to r in c4. k sends r from V(3) to R(4) as k goes to y. Then, with a simple L&H, k sends y from P(4) to P(5), as k goes to position at h(4), Figure AI2.10, LIMITED.

Figure AI2.10: k makes h(4) and goes to r. k sends r from R(4) to E(6,10) – [CO is (r, y, u)] – as k goes to y. k sends y from P(5) to R(5) as k goes to position at h(5), Figure AI2.11, 3-FIX. Note that Figure AI2.11 is the same as Figure AI2.8.

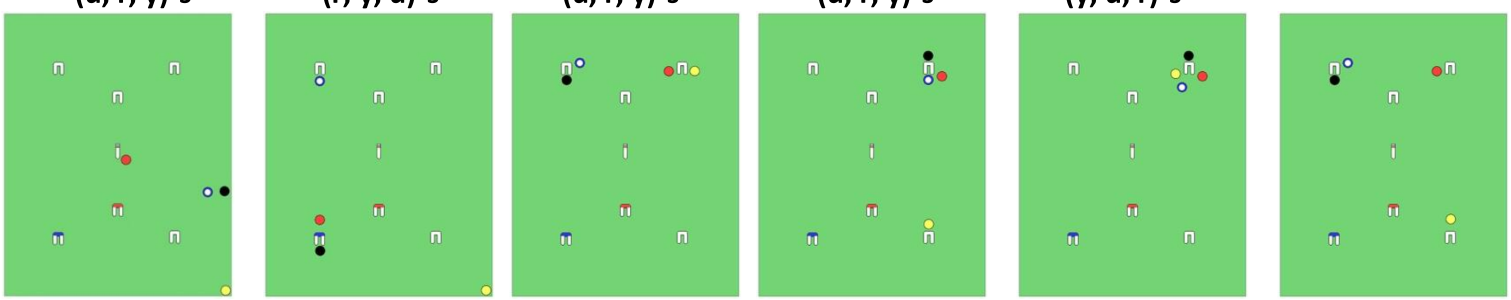
[LIMITED + 3-FIX] made things easier. But this is only true if u was in a good spot in Figure AI2.10. If u was out of position, then the original prescription (REPEAT + STANDARD) may have produced a superior result, albeit with a lot of work.

2.. Early Peels at h(10) When the BEFORE-Ball (y) Shoots and Misses into c4

The initial section of Chapter VII detailed peel attempts at h(10) A-h(3), W-h(4) and W-h(5) when r, the AFTER-Ball lifted from a DSL, shot from B-Baulk and missed into c4. We mentioned then that Striker's ability to do these early peels was more difficult if y, the BEFORE-Ball, plays. This section develops this idea further.

Figure AI2.12: After y misses into c4, k cut-rushes u toward the peg[59] and croquets it to h(2) as P(2) – [CO is (u, r, y)] – as k goes to r (at the peg). k rushes r to P(1), croquets it to R(1) as k goes to position at h(1), Figure AI2.13, 3-BALL.

Start (u, r, y)-s	**3-BALL (r, y, u)-s**	**HOGAN STANDARD (u, r, y)-s**	**A-h(3) REPEAT (u, r, y)-s**	**W-h(4) STANDARD (y, u, r)-s**	**Pass-Roll STANDARD**



AI2.12 – DSL	**AI2.13 – h(1)**	**AI2.14 – h(2)**	**AI2.15 – h(3)**	**AI2.16 – h(3)**	**AI2.17 – h(2)**

k is now in a position to contemplate the h(10)-Peel. The three attempts, A-h(3), W-h(4) and W-h(5) are still possible but, because of CO, none are practical, and all should probably be avoided.

59 This rush was directed to h(1). As such, it is not as easy to get started as it would be in T-AC with the rush directed to the peg, another trade-off of COAC.

h(10)-Peel A-h(3)

Let's do the Arithmetic: RB=u. In Figure AI2.13, k is for h(1), u is P(2), thus, HAVE=P. In j=2 hoops u wants to be R(3), thus WANT=R. In two FS, HAVE will rotate from P to V→GET=V, GET+1=P, and GET+2=R. WANT=GET+2, so a REPEAT and a STANDARD is needed over the next two hoops.

Figure AI2.13: k makes h(1) and goes to r. k sends r from R(1) to V(2) – [CO is (r, y, u)] – as k goes to y. k sends y from V(1) to P(3) with a Hogan-Roll, as k goes to u. k croquets u from P(2) to R(2) as k goes to position at h(2), Figure AI2.14, STANDARD.

Figure AI2.14: k makes h(2) and goes to u. k sends u from R(2) to R(3) – [CO is (u, r, y)] – as k goes to r. k sends r from V(2) to V(3) as k goes to y. Then, with a long L&H, k sends y from P(3) to P(4) as k goes to position at h(3), Figure AI2.15, REPEAT. *k is in position to make h(3) and then attempt the h(10)-Peel A-h(3). But getting here took two very difficult shots!*

h(10)-Peel W-h(4)

Let's do the Arithmetic: This time Striker wants to be able to adjust u before peeling. For this to happen, u will need to be the Pivot-Ball. RB=u. In Figure AI2.13, k is for h(1), u is P(2), thus, HAVE=P. In j=2 hoops u needs to be V(3), thus WANT=V. In two FS, HAVE will rotate from P to V→GET=V, GET+1=P, and GET+2=R. WANT=GET, so two STANDARDs can be used.

The first STANDARD gets us from Figure AI2.13 to Figure AI2.14 using a Hogan-Roll as described above.

Figure AI2.14: k makes h(2) and goes to u. k sends u from R(2) to V(3) – [CO is (u, r, y)] – as k goes to r. k sends r from V(2) to E(4,10) as k goes to y. k sends y from P(3) to R(3) as k goes to position at h(3), Figure AI2.16, STANDARD. *k is in position to make h(3) and go to y. k will use y to achieve a position from which k can adjust and then peel u at h(10) W-h(4) and then escape to h(4) with r.*

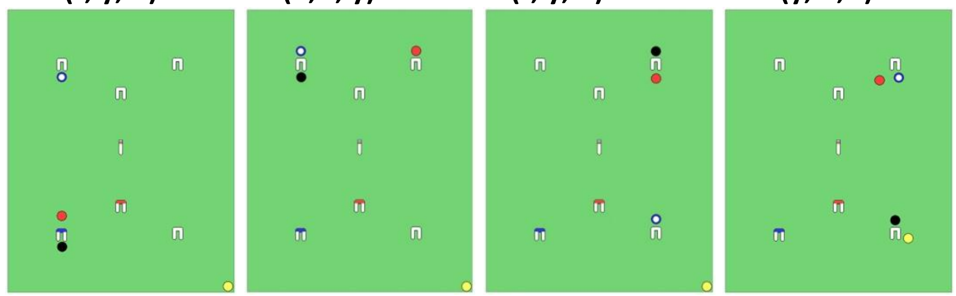
h(10)-Peel W-h(5)

This time k opts out of the Hogan-Roll and accepts a take-off instead.

Figure AI2.13: k makes h(1) and goes to r. k sends r from R(1) to P(3) – [CO is (r, y, u)] – as k goes to y in c4. k takes-off from y as V(1) and converts it to V(2) as k goes to u. k sends u from P(2) to R(2) as k goes to position at h(2), Figure AI2.18, TAC.

Figure AI2.18: k makes h(2) and goes to u. k sends u from R(2) to P(4) – [CO is (u, r, y)] – as k goes to r. k moves r from P(3) to R(3) as k goes to position at h(3), Figure AI2.19, 3-FIX.

Start (r, y, u)-s | **TAC (u, r, y)-os** | **3-FIX (r, y, u)-s** | **EXPEDITE (y, u, r)-s**



AI2.13 – h(1) | **AI2.18 – h(2)** | **AI2.19 – h(3)** | **AI2.20**

k has control of the balls and is now in a position to map out his h(10)-Peel. k is at h(3) with r as R(3), y is V(3) and u is P(4).
A Back-Peel at h(3), A-h(3), is not possible because requires that u be P(3). Nor is it possible to arrange a peel W-h(4) as this would require u to be V(3). How about W-h(5)?

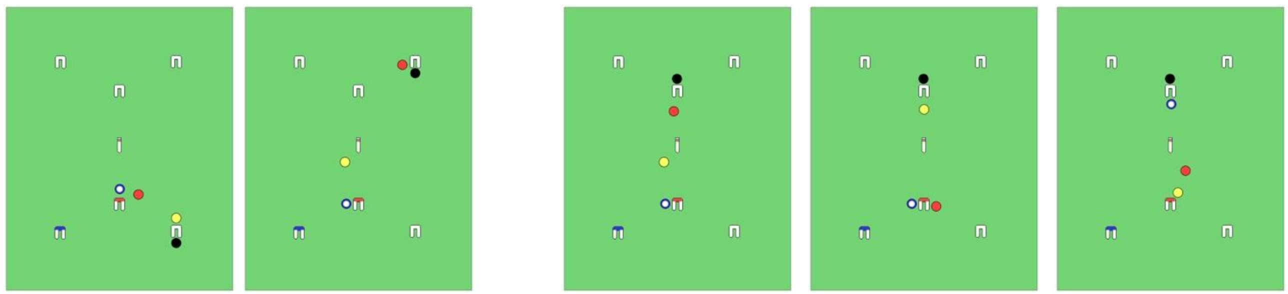
Let's do the Arithmetic: W-h(5): k is at h(3) and u is P(4). RB=u, thus HAVE=P. Peeling W-h(5) is a Transit-Peel that has u as V(4,10), thus, WANT=V. In one FS, HAVE will rotate from P to R→GET=R, GET+1=V, and GET+2=P. WANT=GET+1, so
k needs immediately to execute an EXPEDITE.

Figure AI2.19: k makes h(3) and goes to r. k leaves r at h(10) converting it from R(3) to E(5,10) – [CO is (r, y, u)] – as k goes to y in c4. k sends y from V(3) to R(4) as k goes to u. Then, with a long L&H, k sends u from P(4) to V(4,10) as k goes to position at h(4), Figure AI2.20, EXPEDITE. *k is in position for the peel of u W-h(5), but the length of the L&H makes getting to this position unlikely.*

ADDED INFO #3: (CHAPTER VII): An Example of the Flexibility of the Procedures When the h(12)-Peel is in Trouble

In the panel of Figures below, k attempts a h(12)-Peel W-h(10) which fails. Striker is faced with the question – how best, or even if, to proceed? Here are multiple solutions, each involving a different Procedure.

Start **STANDARD** **2-BALL, 3-L&H REPEAT** **3-BALL EXPEDITE** **STANDARD**



AI3.1 – h(9) **AI3.2 – h(10)** **AI3.3 – h(11)** **AI3.4 – h(11)** **AI3.5 – h(11)**

Consider Figure AI3.1. k is for h(9) and u is for h(12), having been peeled through h(10) and h(11). *For whatever reason*, k is looking to complete the h(12)-Peel W-h(10) and then finish. He proceeds as follows:

Figure AI3.1: k makes h(9) and goes to y. k sends y from R(9) to V(10) – [CO is (y, u, r)] – as k goes to u. k attempts the h(12)-Peel W-h(10), *but it fails* – k sends u from V(10, 12) to P(11,12) as k goes to r. k escapes with (rushes) r to h(10) – from E(10,12) to P(10) – and then k croquets r to R(10) as k goes to position at h(10), Figure AI3.2, STANDARD.

Given his position in Figure AI3.2, k is forced to make h(10) and go to r, setting the CO as (r, y, u). That is, r is R(10), y is V(10) and u is M(11,12) – the Misplaced-Pioneer for h(11) sitting near h(12). Assuming that k would still like to finish the Triple-Peel and Peg out, the question becomes: What should k do next?

Let's do the Arithmetic: k is in position at h(10). RB=u, which in Figure AI3.2 is a misplaced Pioneer-Ball for h(11) situated at h(12), M(11,12). Thus, HAVE=P. In order to complete the Triple, any needed adjustment must be made by the time k is in position to make h(11), in just one hoop. In (j=1) FS, HAVE will rotate from P to R→GET=R, GET1=V, and GET2=P. What should WANT be?

The best result for u/k is to set up for the h(12)-Peel S-h(12), Figure AI3.3. Here u is once again P, so WANT is P which is GET2 implying that a REPEAT or the equivalent is needed. Three Procedures can do this(!):

1. The easiest way to proceed is use 2-BALL and only involve r: k rushes r from R(10) to R(11) and does not touch the other balls.

2. If the rush is not possible, or does not work out, then the next easiest way to proceed is to use 3-L&H and only involve r and y: k sends r from R(10) to R(11) as k goes to y. Then, with a L&H, k sends y from V(10) to V(11) as k goes to position at h(11).

3. The most difficult way to proceed is to use REPEAT and use all three balls: r, y and u: k sends r from R(10) to R(11) as k goes to y. k sends y from V(10) to V(11) as k goes to u. Then, with a difficult L&H, k sends u from P(11,12) to P(12,12).

   These three Procedures can be considered as a group and tried one after the other in the order listed.

Next best for u/k is to try the h(12)-Peel W-h(12), Figure AI3.4. Here u needs to be the Pivot-Ball, thus WANT=V, which is GET1 implying that an EXPEDITE or its equivalent is needed. Two Procedures work (!):

1. The easiest way to proceed is to use 3-BALL and use just r and y: k sends r from R(10) to P(12) as k goes to y. k rushes y from V(10) to P(11) and then croquets it to R(11) as k goes to position at h(11).

2. Not as easy, is to use EXPEDITE involving r, y, and u: k sends r from R(10) to P(12) as k goes to y. k sends y from V(10) to R(11) as k goes to u. Then, with a difficult L&H, k sends u from P(11) to V(12,12) as k goes to position at h(11).

   Once again, these could be tried one after the other, that is, try 3-BALL and resort to EXPEDITE if that fails.

Finally, it may not be possible to follow any of the previously discussed strategies. In this case k should give up on the Triple and set a leave. That is, k is forced to accept that WANT=GET and proceed with STANDARD. This will result in Figure AI3.5.

ADDED INFO #4: (Chapter VIII): An Alternative DSL with a Reverse Rush

[Consider] "… the reverse rush" originated by Humphrey Hicks in which you deliberately give your backward ball a rush to nowhere… If RY and UK were not men but machines, the reverse rush would be fatuous. … [But if men then] "it might pay RY to use the reverse rush, but only if he is correct in considering UK to be weak in the heart or weak in the head."
Wylie, Expert Croquet Tactics, page 103.

In Figure AI4.1 u has run 9 and set a DSL. This DSL differs in two ways from that proposed in Chapter IV: (i) **Opponent balls:** y is positioned closer to the west boundary and further north than previously advised. r's position at the peg is adjusted accordingly to maintain the cross-wire, and (ii) **Striker and his Partner:** They are positioned on the east boundary such that u, for h(10), is near c4 and k, for h(1), is just north of u – about a foot.

Thus, k the backward ball, has a "reverse rush" on u to c4. But we do not consider it "fatuous" because u the forward ball, also has a line-rush on k to h(10). This is also true in the T-AC example mentioned above. But Wylie's focus is entirely on running a Triple. He ignores the possibility that the forward ball plays, which, in his case, could lead to a 3-Turn, no-peel finish. In COAC, it is necessary to give more attention to failing to complete the Triple or even the peel at h(10) – because of the prospect of giving a lift-to-contact or simply not progressing. We would have made this leave an element of Chapter VII, but for one weakness: The shot from the end of A-Baulk to u/k is only 13 yards. If that can be accepted, or over-looked, then this leave has useful insights, in particular about cannons and bombards – that can convert otherwise Delayed-Triples into Standard-Triples or 4-Turn Finishes.

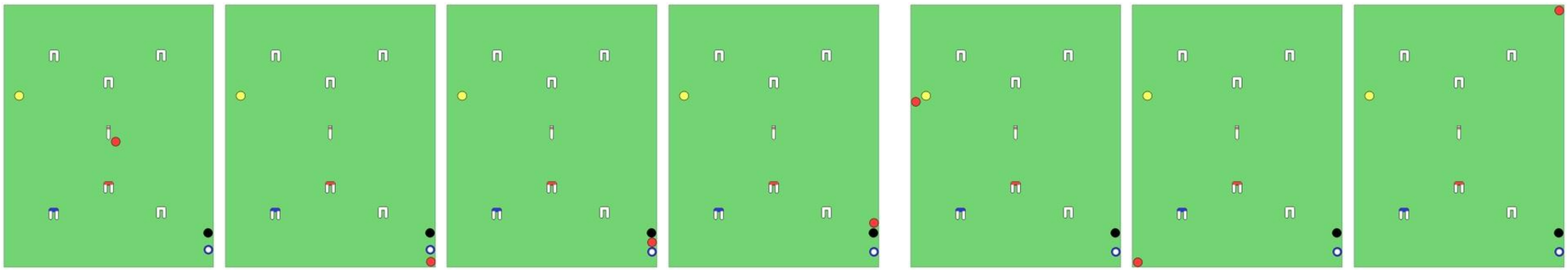
Figures AI4.2 - AI4.7, below, show possible responses by r, and Figures AI4.13 - AI4.17, three pages forward, show responses by y.

Figure AI4.2: **r shoots from the end of A-Baulk and misses into c4.** At their option, r/y get to position r touching u, either to the west or north. If r is placed to the west, then k plays. k rushes u into c4 for a c4 cannon, the result of which is shown in Figure AI4.8, which should lead to a Standard-Triple. If r is placed on the north, then u will play. u will use r to gain a rush that sends k to h(10). u will then attempt to jaws. If the jawsing is successful (not shown), and r/y miss again, then k will rush-peel u and go to r (and also perhaps to y) to set-up either to continue his Triple, or to turn it over to u to make h(11) and h(12), as discussed in Chapter VIII.

If the jawsing fails, the likely outcome, then k can organize the balls, with k near u at h(10) and r near c4, Figure AI4.9. r/y will have a shot. If they miss, then k will re-organize the balls as previously shown in Chapter VIII, the Peel-To-Leave, repeated as Figure AI4.12. Assuming r/y miss again, then k will run a Standard-Triple or turn it over to u to make h(11) and h(12).

r Shoots

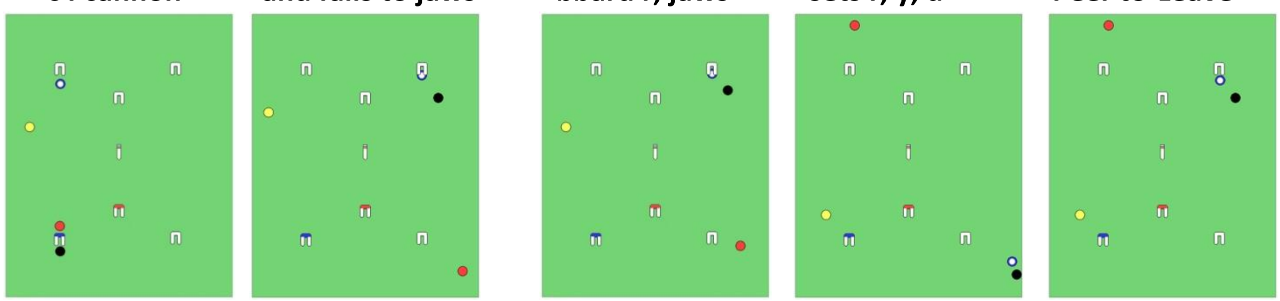
Start	r misses into c4	r btwn u and k	r to north of k	r misses y from b	r finesses to c1	r finesses to c3



AI4.1	AI4.2	AI4.3	AI4.4	AI4.5	AI4.6	AI4.7

u/k Answers

r misses to c4, if: r placed west of u k plays c4 cannon	r placed north of u u plays, rushes k and fails to jaws	r misses btwn u and k u plays bbard r, jaws	r misses north of k k plays sets r, y, u	r misses y, finesses to c1 or c3 u plays, sets Peel-to-Leave



AI4.8	AI4.9	AI4.10	AI4.11	AI4.12

Figure AI4.3: **r shoots from A-Baulk and misses between u and k**. u plays. u rushes (bombards) r into k, sending r out of bounds while cutting k toward h(10). r is marked-in and u takes off from r to k. Presuming k has progressed sufficiently toward h(10), it should be relatively easy for u to rush k to h(10) and then jaws, as shown in Figure AI4.10.

Figure AI4.4: **r shoots from A-Baulk and misses north of k. k plays**. k taps u and gains a rush on r. k sends r north of h(2) going to y. y is moved south toward h(1). Then k shoots out of bounds south of u gaining a rush on u to h(10), as shown in Figure AI4.11. It may take a couple of turns, but as long as r/y continue to miss, k should be able to organize the Peel-To-Leave and have good prospects. *Alternatively, k could try and dig out a break immediately and attempt a Standard-Triple.*

Figure AI4.5, AI4.6 or AI4.7: **If r shoots to anywhere else**, **at y or finesses**, then u will play. u will rush k to h(10) and then go to y and r to create Figure AI4.12, discussed previously.

The opportunities for u/k are similar, but subtly different, when y shoots.

Figure AI4.13: **y shoots from the end of A-Baulk and misses into c4**. At their option, r/y get to position y touching u, either to the west or north of u. In either case, k will play. If y is placed to the north, then k taps y and gains a c4 cannon, results shown in Figure AI4.18, which once again should lead to a Standard-Triple. If y is placed to the west, then k taps u and gains a promotional cannon, results shown in Figure AI4.19. The proximity of r, at the peg, makes this cannon feasible where it was not possible before when y was near h(2)[60]. Again, a Standard-Triple should be in the offing.

Figure AI4.14: **y shoots from A-Baulk and misses between u and k.** u plays. u rushes (bombards) y into k, sending y out of bounds while cutting k toward h(10). y is marked-in and u takes off from y and goes to r. u may be able to jaws in h(10), but at a minimum u should be able to set Figure AI7.20, which is equivalent to Figure AI4.12 presented above. *Alternatively, k could play and attempt a Standard-Triple.*

Figure AI4.15: **y shoots from A-Baulk and misses north of k.** k plays. k taps y and then gains a rush on u. k sends u toward peel position at h(10) and gains a rush on r. k rushes and croquets r north of h(2) and then goes back to u, Figure AI4.21. Again, a*lternatively, k could attempt a Standard-Triple.*

[60] A ball roqueted out of CO is treated like a dead ball. This means that, in lieu of the promotional cannon, k could have formed a traditional cannon rushing the dead ball y to h(1) while croqueting u to h(2). If k stays in bounds and somehow ends in proximity of r, then k can continue his break by roqueting r. At that point y is no longer a dead ball! k can return to it to make h(1). The difficulty with this strategy is that getting k to r after a traditional cannon is much more difficult than getting it to r with a promotional cannon.

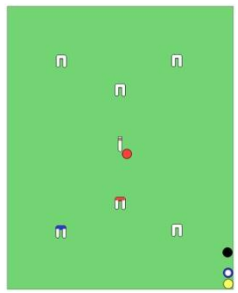
Figures AI4.16 and AI4.17: **If y shoots to anywhere else,** then u will play and rush k to h(10), take off to y, and then establish the now familiar position, the Peel-To-Leave, Figure AI4.22.

y Shoots

Start

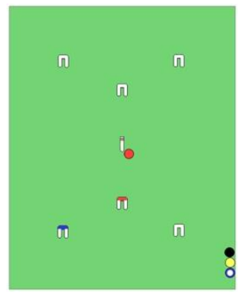
AI4.1

y misses into c4



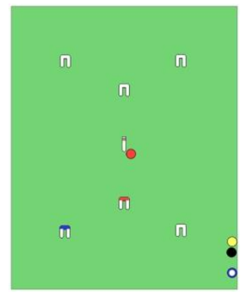
AI4.13

y btwn u and k



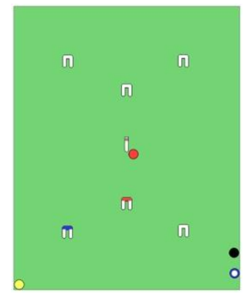
AI4.14

y north of k



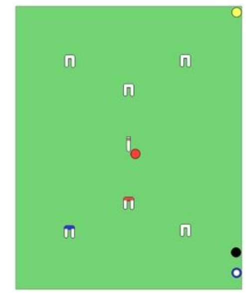
AI4.15

y finesses to c1



AI4.16

y finesses to c3

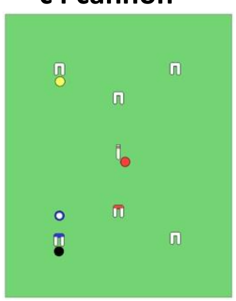


AI4.17

u/k Answers

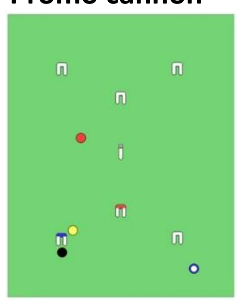
y misses to c4, if:

y placed north of u
k plays
c4 cannon



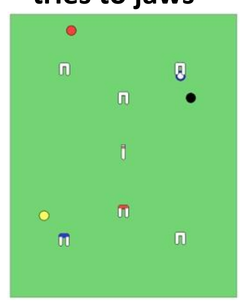
AI4.18

y placed west of u
k plays
Promo cannon



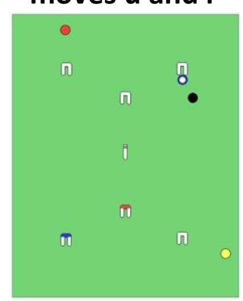
AI4.19

y misses btwn
u and k
u plays, bbard y
tries to jaws



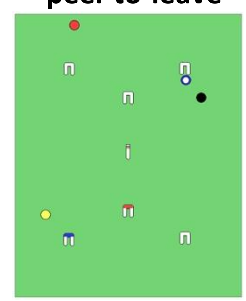
AI4.20

y misses
north of k
k plays, taps y
moves u and r



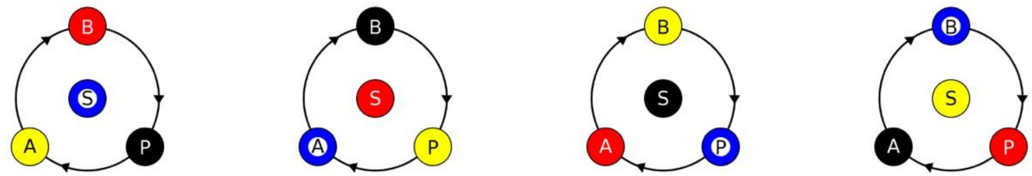
AI4.21

y misses r
or y finesses
u plays/sets
peel-to-leave



AI4.22

COAC IN ONE PAGE

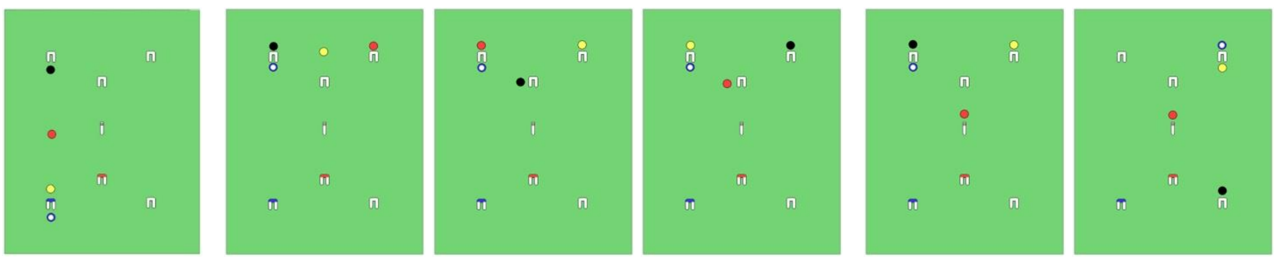


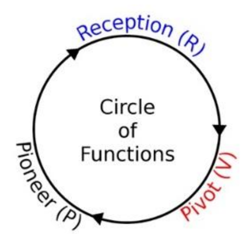
(S=Striker, A=AFTER, B=BEFORE, P=Partner)

AC Rules plus these additions:

1. Striker must use the balls in CO as set by the 1st roquet to start a turn, and then reset by the 1st roquet after making each hoop.
2. Striker may not score h(10) for himself unless: (i) Striker's team has peeled a ball (Partner or Oppo) to score h(10), or (ii) Oppos have peeled one of the Striker-Team balls to score h(10). Striker making h(10) on his own always grants a lift-to-contact.

Start **STANDARD** **EXPEDITE** **REPEAT** **TAC** **3-FIX**





Major Procedures

Name	R	Steps	V	Steps	P	Steps	L&H
STANDARD	V	1	P	1	R	1	No
EXPEDITE	P	2	R	2	V	2	Yes
REPEAT	R	0	V	0	P	0	Yes
TAC	P	2	V	0	R	1	No
3-FIX	P	2	V	0	R	1	No
3-L&H	R	0	V	0	P	0	Yes
2-BALL	R	0	V	0	P	0	No

The Arithmetic of Color Order

Striker is making h(i) where Partner has Function R, V, or P. In k hoops Striker will be making h(i+k) where partner needs to be – specify: R, V, or P. Will the **STANDARD** Procedure get him there or is an **EXPEDITE** or REPEAT needed? Calculate what Function Partner will have in k hoops if only **STANDARD** is used – look mod(3:k) Functions forward. Is that what is desired? If yes, then use only **STANDARD**. If no, then starting from the calculated Function, move one or two steps forward until the desired Function is reached. If one step, then an **EXPEDITE** Procedure is needed; if two steps, then a **REPEAT** Procedure is needed, or the equivalent.