Analytical Solution for Probabilistic Logic with Conditional Probabilities

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Abstract

Given a set of logical sentences and probabilities that these sentences are true, the probabilistic logic problem consists in determining whether these probabilities are consistent. When so, the probabilistic entailment problem is to determine the range of values of the probability associated with an additional logical sentence such that the resulting system of sentences and probabilities remains consistent.

These problems are well-solved, both analytically and numerically. In this note, we propose an analytical solution method for their extension where conditional probabilities are given instead of or in addtion to probabilities. This method is illustrated by automated deduction, and improvement in one case, of inference rules with conditional probabilities gathered by Frisch and Haddawy (1994).

Résumé

Étant donné un ensemble de phrases logiques et de probabilités que ces phrases soient vraies, le problème de la logique probabiliste consiste à déterminer si ces probabilités sont cohérentes. Si c'est le cas, le problème de l'inférence probabiliste est de déterminer l'étendue des valeurs de la probabilité d'une phrase logique additionnelle telle que le système de phrases logiques et de probabilités résultant demeure cohérent.

Ces problèmes sont bien résolus, tant analytiquement que numériquement. Dans cette note nous proposons une méthode de résolution analytique pour leur extension où des probabilités conditionnelles sont données au lieu de ou en plus de probabilités. La méthode est illustrée par la déduction automatique, et l'amélioration dans un cas, de règles d'inférence avec des probabilités conditionnelles réunies par Frisch et Haddawy (1994).

1 Introduction

Probabilistic logic (Nilsson [1]) is an approach to reasoning under uncertainty which agrees both with standard logic and probability theory. It has been initiated by Boole [2] and developed by Hailperin [3; 4; 5], and others, using tools from linear programming. Since the appearance of [1] theory and applications of probabilistic logic have been the subject matter of over 100 papers, see Nilsson [6], Chandru and Hooker [7], Hansen and Jaumard [8] for recent surveys.

The Probabilistic Logic problem [1; 9; 10] also called **Probabilistic Satisfiability** (or PSAT for short), is defined as follows. Let $S = \{S_1, S_2, \ldots, S_m\}$ be a set of m logical sentences defined on a set of n boolean variables $X = \{x_1, x_2, \ldots, x_n\}$ with the usual operators $\vee$ (disjunction), $\wedge$ (conjunction) and $^-$ (negation or complementation). Let $\pi = (\pi_1, \pi_2, \ldots, \pi_m)$ be a probability vector such that π_i defines the probability that sentence S_i is true, for all $i = 1, 2, \ldots, m$.

Let $w = (w_1, w_2, \ldots, w_m)$ be a truth assignment for S, where w_i is equal to 1 if S_i has value true, and to 0 otherwise. A vector $w \in \{0,1\}^m$ is a *possible world* if there exists a truth assignment over X which leads to w over S and it is an *impossible world* otherwise. Let W denote the set of possible worlds and set k equal to $|W|$ (note that $k \leq 2^n$).

Let $p = (p_1, p_2, \ldots, p_k)$ be a probability distribution on W, with $0 \leq p_j \leq 1$ ($j = 1, \ldots, k$) and $\sum_j p_j = 1$. The probability distribution p is *consistent* if it satisfies the set of logical sentences together with their probabilities, i.e., if for each S_i, the sum of p_j's over all truth assignments w^j that satisfy S_i (i.e., $w_i^j = 1$) equals π_i.

For a given set S of sentences, let $A = (a_{ij})$ be an $m \times k$ matrix such that a_{ij} is equal to 1 if S_i is true for w^j, and equal to 0 otherwise. The linear programming formulation of the probabilistic logic problem is to determine whether or not there exists a vector p such that:

$$(P) \qquad \left\{ \begin{array}{rcl} \mathbb{1}\, p & = & 1 \\ Ap & = & \pi \\ p & \geq & 0 \end{array} \right.$$

where $\mathbb{1}$ denotes a unit row k-vector. Observe that a given instance (P) of the probabilistic logic problem is completely determined by the pair $(S,\ \pi)$.

Let us assume that the PSAT problem defined by (P) is consistent. Let S_{m+1} denote an additional logical sentence, with an unknown probability π_{m+1}. The Probabilistic Entailment problem [1] (also known as optimization version of PSAT), is to determine the range $[\underline{\pi}_{m+1}, \overline{\pi}_{m+1}]$ of values of the probability π_{m+1} such that $(S \cup \{S_{m+1}\}, (\pi, \pi_{m+1}))$ is consistent.

Consider the objective function $A_{m+1}p$ (with $A_{m+1} = (a_{m+1,j})$, where $a_{m+1,j}$ is equal to 1 if S_{m+1} is true for the possible world w^j and equal to 0 otherwise). The Probabilistic Entailment problem corresponds to the solution of the following linear programs

$$(P_{\min}) \qquad \underline{\pi}_{m+1} = \min\{A_{m+1}p : \text{constraints of } (P)\}$$

and

$$(P_{\max}) \qquad \overline{\pi}_{m+1} = \max\{A_{m+1}p : \text{constraints of } (P)\}.$$

Numerical solution of both the probabilistic logic and entailment problems has been well studied [9; 11; 12; 13; 14; 15]. Using the powerful column generation technique of linear programming, instances with up to 1200 logical sentences S_i, 800 boolean variables x_k and billions of billions of variables p_j (i.e., up to 2^{800}), most of which are kept implicit, can now be solved exactly [15].

An analytical expression of the lower and upper bounds of the probability of an event to occur can be computed using the coordinates of the extreme points (or vertices) of the dual polyhedron of the linear program (P) which maximize or minimize the objective functions of the duals of $(P_{\min})$ and $(P_{\max})$:

$$(D_{\max}) \qquad \max\{u_0 + \pi^t \cdot u : \mathbb{1}\ u_0 + A^t u \leq A^t_{m+1}\}$$

and

$$(D_{\min}) \qquad \min\{u_0 + \pi^t \cdot u : \mathbb{1}\ u_0 + A^t u \geq A^t_{m+1}\}.$$

These expressions can be easily obtained using any enumeration algorithm for extreme points (e.g., Fukuda and Prodon [16]) as the constraints of the dual polyhedron of (P) are independent of π. The value of each vertex is associated with a linear expression in the probabilities π_i of the events to occur. Hailperin [3] showed that the best lower (resp. upper) bound on the probability of an additional sentence can be expressed as the largest (resp. smallest) value for all such linear expressions. This result was later completed by Hansen *et al.* [10] with the generation of the consistency conditions, which requires the enumeration of the extreme rays of the dual polyhedron (D) of (P). The consistency conditions correspond to affine functions on the $\pi_i (i = 1, \ldots, m)$ such that the probabilistic logic problem is consistent if they are non-positive. These results are summarized, as follows:

Theorem 1 ***(Probabilistic Entailment**, Hailperin [3]).*
The best lower (upper) bound for $\underline{\pi}_{m+1}$ ($\overline{\pi}_{m+1}$) is given by the following convex (concave) piecewise linear function of the probability assignment:

$$\underline{\pi}_{m+1}(\overline{\pi}_{m+1}) = \max_{j=1,2,\ldots,k_{max}} (1,\pi)^t \cdot u^j_{max} \left(= \min_{j=1,2,\ldots,k_{min}} (1,\pi)^t \cdot u^j_{min} \right)$$

where $u^j_{max}(u^j_{min})$, for all j, represents the $k_{max}(k_{min})$ extreme points of (D_{max}) $((D_{min}))$.

Theorem 2 *(**Consistency Conditions**, Hansen, Jaumard and Poggi de Aragão [10]).*
The Probabilistic Logic problem (P) is consistent if and only if the inequality $(1,\pi)^t \cdot r \leq 0$ holds for all extreme rays r of the dual (D) of (P).

Both the probabilistic logic and the probabilistic entailment problems can be easily extended to the case where probability intervals $[\underline{\pi}, \overline{\pi}]$ are assigned to the logical sentences instead of the point values π_i for $i = 1, 2, \ldots, m$, as shown by Hailperin [3]. The model so obtained is often more realistic in applications such as, e.g., medical or failure diagnosis, as the experts usually provide subjective probabilities for the π values and find it easier to specify intervals containing the π_i that exact values for these π_i. The width of the intervals then reflect the confidence of the experts in their probability estimates. Equations for PSAT are then modified as follows:

$$(PI) \qquad \begin{cases} \mathbb{1}\, p = 1 \\ \underline{\pi} \leq Ap \leq \overline{\pi} \\ p \geq 0, \end{cases}$$

with an instance defined by a triplet $(S, \underline{\pi}, \overline{\pi})$, and by linear programs $(PI_{\min})$ and $(PI_{\max})$ for the corresponding probabilistic entailment problem, with objective as in $(P_{\min})$ and $(P_{\max})$.

An even more significant extension is to introduce conditional probabilities in probabilistic logic and entailment. Indeed, it is often the case that probabilities of events are hard to estimate and uninformative unless some condition holds (e.g., the probability of having an illness given some symptom is of interest for diagnosis, while the probability of having that illness in general gives little information). This extension was already discussed by Boole [17] for particular examples, and much later by Hailperin [5], Chesnokov [18], Jaumard, Hansen and Poggi de Aragão [12], Frisch and Haddawy [19], Lukasiewicz [20], and others.

The conditional probability of the event E_i, given the event E_j, will be denoted $\pi(E_i|E_j)$ and defined by the following equation, where $\pi(E_j)$ and $\pi(E_i \wedge E_j)$ are given:

$$\pi(E_i|E_j)\pi(E_j) = \pi(E_i \wedge E_j).$$

Observe that this definition coincides with the usual one, after dividing both sides by $\pi(E_j)$, if $\pi(E_j) > 0$ and does not force $\pi(E_i|E_j)$ to take any particular value if $\pi(E_j) = \pi(E_i \wedge E_j) = 0$.

Consider again a set $S = \{S_1, S_2, \ldots, S_m\}$ of m logical sentences. Let $M = \{1, 2, \ldots, m\}$ and $Q = \{1, 2, \ldots, q\}$ be the index set of the sentences with unconditional probabilities, where $q < m$. Let $C \subseteq M \times M$ be the index set of the pair of sentences (S_i, S_j) involved in the definition of a conditional probability $\pi_{i|j}$. It can be written as follows, assuming that each sentence S_i is associated with an event E_i:

$$\pi_{i|j}\pi_j = \pi_{i|j}A_i p = \pi(S_i|S_j)\pi(S_i) = \pi(S_i \wedge S_j) = (A_i \wedge A_j)p = A_{i\wedge j}p.$$

Considering furthermore that we want to compute best possible bounds on a conditional probability $P(S_s|S_\ell)$ $(s,\ell) \in C$, in the objective function, leads to the most general case:

$$(PC) \qquad \begin{cases} \qquad\qquad \min / \max \quad \dfrac{A_{s\wedge\ell}p}{A_\ell p} \\ \text{subject to:} \\ \qquad\qquad 1\!\!1\, p = 1 \\ \underline{\pi}_i \leq \qquad A_i p \leq \overline{\pi}_i & i \in Q \\ 0 \leq (A_{i\wedge j} - \underline{\pi}_{i|j}A_j)p & (i,j) \in C \\ (A_{i\wedge j} - \overline{\pi}_{i|j}A_j)p \leq 0 & (i,j) \in C \\ \qquad\qquad A_\ell p > 0 \\ \qquad\qquad p \geq 0. \end{cases}$$

Point probabilities and conditional probabilities correspond to the cases $\pi_i = \underline{\pi}_i = \overline{\pi}_i$ and $\pi_{i|j} = \underline{\pi}_{i|j} = \overline{\pi}_{i|j}$. In the remainder of this note we examine how to solve (PC) analytically.

2 Reformulation

A first difficulty is the fractional objective function. However, a transformation due to Charnes and Cooper [21] yields a program (PC') with one more variable t and a linear objective:

$$(PC') \qquad \begin{cases} \qquad\qquad \min / \max \quad z = A_{s\wedge\ell}p' \\ \text{subject to:} \\ \qquad\qquad A_\ell p' = 1 \\ \qquad\qquad 1\!\!1\, p' = t \\ \underline{\pi}_i t \leq \qquad A_i p' \leq \overline{\pi}_i t & i \in Q \\ 0 \leq (A_{i\wedge j} - \underline{\pi}_{i|j}A_j)p' & (i,j) \in C \\ (A_{i\wedge j} - \overline{\pi}_{i|j}A_j)p' \leq 0 & (i,j) \in C \\ \qquad\qquad p', t \geq 0, \end{cases}$$

where $p' = p \cdot t$, and with the same optimal value; the corresponding solution is obtained by dividing the optimal solution $p^{'*}$ of (PC') by t^*. This transformation consist in multiplying all variables by a value $t \geq 1$ chosen in such a way that the denominator of the objective is equal to 1, and hence disappears.

A second difficulty is that the constraints bounding conditional probabilities have parameter $\underline{\pi}_{i|j}$ or $\overline{\pi}_{i|j}$ in their left-hand sides (i.e., multiplying variables). This time, by introducing new parameters and elementary transformations all parameters can be transferred to the right-hand sides:

$$(PC'') \quad \begin{cases} \min / \max z = A_{s\wedge\ell} p' \\ \text{subject to:} \\ \qquad A_\ell p' = 1 \\ \qquad \mathbb{1}\, p' = t \\ \underline{\pi}_i t \leq \quad A_i p' \leq \overline{\pi}_i t & i \in Q \\ \underline{\pi}_{i|j} \pi'_j \leq A_{i\wedge j} p' \leq \overline{\pi}_{i|j} \pi'_j & (i,j) \in C \\ \qquad A_j p' = \pi'_j & j : (i,j) \in C \\ \qquad p', t \geq 0. \end{cases}$$

While (PC'') has products of parameters in the right-hand sides, instead of single parameters as in the unconditional case, Theorems 1 and 2 still apply. This is the basis of the algorithm described in the next section.

Note that the order in which these two transformation are done can be reversed. This gives the following alternate form:

$$(PC''') \quad \begin{cases} \min / \max z = A_{s\wedge\ell} p' \\ \text{subject to:} \\ \qquad A_\ell p' = 1 \\ \qquad \mathbb{1}\, p' = t \\ \underline{\pi}_i t \leq \quad A_i p' \leq \overline{\pi}_i t & i \in Q \\ \underline{\pi}_{i|j} \pi'_j t \leq A_{i\wedge j} p' \leq \overline{\pi}_{i|j} \pi'_j t & (i,j) \in C \\ \qquad A_j p' = \pi'_j t & j : (i,j) \in C \\ \qquad p', t \geq 0. \end{cases}$$

3 Algorithm

Problem (PC) can be solved analytically by the following algorithm, called VRE (vertex and ray enumeration):

(a) Introducing new parameters π'_j and t, express (PC) in the form (PC'').

(b) Write the dual (DC'') of (PC'').

(c) Enumerate all extreme points and extreme rays of the polyhedron defined by (DC'').

(d) Introducing values of theses extreme points and extreme rays in the objective function of (DC''), obtain best possible parametric expressions of bounds on the objective function value and consistency conditions.

(e) Eliminate parameters π'_j and t from these bounds and conditions.

A variant of this algorithm consists in using (PC''') and its dual (DC''') instead of (PC'') and (DC''). Correctness of algorithm VRE follows from the reformulations of the previous section and the duality theorem of linear programming as expressed in Theorems 1 and 2.

Several tools are available for implementing VRE, e.g., the vertex and extreme rays enumeration program of Fukuda and Prodon [16], already mentioned, for step (c) and the algebraic manipulation system REDUCE [22] for parameter elimination in step (e).

Example 1 The following problem corresponds to rule (v) in Frisch and Haddawy [19]:

$$\pi(x_2) \in [\underline{\pi}_1, \overline{\pi}_2]; \quad \pi(x_1 \wedge x_2) \in [\underline{\pi}_2, \overline{\pi}_2]; \quad \pi(x_1|x_2) = ?$$

Setting $p_1 = \pi(x_1 x_2)$, $p_2 = \pi(x_1 \bar{x}_2)$, $p_3 = (\bar{x}_1 x_2)$ and $p_4 = (\bar{x}_1 \bar{x}_2)$, problem (PC'''), in step (a) is:

$$\begin{array}{ll} & \min / \max \quad z = p'_1 \\ \text{subject to:} & \\ & \begin{array}{rcl} p'_1 + p'_3 & = & 1 \\ p'_1 + p'_2 + p'_3 + p'_4 & = & t \\ p'_1 + p'_3 & \geq & \underline{\pi}_1 t \\ -p'_1 - p'_3 & \geq & -\overline{\pi}_1 t \\ p'_1 & \geq & \underline{\pi}_2 t \\ -p'_1 & \geq & -\overline{\pi}_2 t \\ p'_i, t & \geq & 0 \qquad i = 1, 2, 3, 4. \end{array} \end{array}$$

The dual (DC''') of this problem (step (b)) is:

$$\begin{array}{ll} \max / \min u_1 + tu_2 + \underline{\pi}_1 tu_3 - \overline{\pi}_1 tu_4 + \underline{\pi}_2 tu_5 - \overline{\pi}_2 tu_6 & \\ \text{subject to:} & \\ \quad u_1 + u_2 + u_3 - u_4 + u_5 - u_6 & \leq / \geq 1 \\ \quad u_2 & \leq / \geq 0 \\ \quad u_1 + u_2 + u_3 - u_4 + & \leq / \geq 1 \\ \quad u_2 & \leq / \geq 0 \\ \quad u_3, u_4, u_5, u_6 & \geq / \leq 0 \\ \quad u_1, u_2 \text{ unrestricted,} & \end{array}$$

where the fourth constraint, which is equivalent to the second one, may be omitted.

For maximization the extreme points of the polyhedron defined by(DC'') are (step (c)): $(0,0,0,0,1,0)$ which corresponds to $z \geq \underline{\pi}_2 t$ and $(0,0,0,0,0,0)$ which corresponds to $z \geq 0$, and for minimization: $(0,0,0,0,0,-1)$ which corresponds to $z \leq \overline{\pi}_2 t$, $(1,0,0,0,0,0)$ which corresponds to $z \leq 1$.

The extreme rays are (step (d)), for maximization: $(0,0,0,0,0,1)$ which corresponds to $-\overline{\pi}_2 t \leq 0$, $(-1,0,0,0,1,0)$ which corresponds to $-1 + \underline{\pi}_2 t \leq 0$, $(0,0,0,0,1,1)$ which corresponds to $\underline{\pi}_2 t - \overline{\pi}_2 t \leq 0$, (1, -1,0,0,0,0) which corresponds to $1 - t \leq 0$, $(-1, 0, 1, 0, 0, 0)$ which corresponds to $-1 + \underline{\pi}_1 t \leq 0$, $(1, 0, 0, 1, 0, 0)$ which corresponds to $1 - \overline{\pi}_1 t \leq 0$ and for minimization: $(0, 0, 0, 0, 0, -1)$ which corresponds to $-\overline{\pi}_2 t \geq 0$, $(1, 0, 0, 0, -1, 0)$ which corresponds to $-1 + \underline{\pi}_2 t \geq 0$, $(0, 0, 0, 0, -1, -1)$ which corresponds to $-\underline{\pi}_2 t + \overline{\pi}_2 t \geq 0$, $(-1, 1, 0, 0, 0, 0)$ which corresponds to $-1 + t \geq 0$, $(1, 0, 1, 0, 0, 0)$ which corresponds to $1 - \underline{\pi}_1 t \geq 0$, and (-1,0,0, -1,0,0) which corresponds to $-1 + \overline{\pi}_1 t \geq 0$.

After elimination of the parameter t, they give (step (e)) the lower bound on $\pi(x_1|x_2)$: $L = \dfrac{\underline{\pi}_2}{\overline{\pi}_1}$ the upper bound $U = \min\{1, \dfrac{\overline{\pi}_2}{\underline{\pi}_1}\}$ and the consistency conditions: $\underline{\pi}_i \leq \overline{\pi}_i, \underline{\pi}_i \leq 1$, $\overline{\pi}_i \geq 0$, (for $i = 1, 2$), and $\underline{\pi}_2 \leq \overline{\pi}_1$.

Other solution methods than VRE could also be applied. One alternative is to use REDUCE directly on (PC'), eliminating all variables of p' and t, as well as z, which is needed to have all consistency conditions. This may be time-consuming as the number of possible worlds may be much larger than the number of constraints.

Note that Fourier-Motzkin elimination could be used here. This is what Boole [2] did, in a systematic way for the unconditional case of PSAT and somewhat less systematically for particular conditional PSAT problems. Instead of Fourier-Motzkin elimination, the REDLOG package of REDUCE uses the real quantifier method (see e.g., Dolzmann and Sturm [23], Dolzmann, Sturm and Weispfenning [24], Hearn [22]) which is more efficient. In particular the number of expressions grows during the solution process at most as an exponential in problem size versus a double exponential for Fourier-Motzkin's method.

Hailperin [5] proposes to find bounds on the objective function by enumeration of bases of the dual (DC') of (PC') where parameter t is viewed as a variable. Slack variables are added and all square submatrices considered is turn. For each of them it is checked analytically (as the constraints of (DC') contains parameters) whether the corresponding solution is feasible or not. Again, the approach may be time-consuming as there are many more bases of (DC') than extreme points of the corresponding polyhedron. Also, this method does not provide consistency conditions. It could, at least in principle, be extended to do so by enumerating analytically all edges from the extreme points found and checking whether they are extreme rays or not. This could be done by determining the intersection points of these edges with the constraints not active at the corresponding extreme points and verifying that they are all on the infeasible side.

We compare these three approaches on the next example.

Example 2 The following problem a variants of one of Boole (1854, p.321) and was analyzed by Hailperin [5] (Theorem 5.52 p. 244): $\pi(x_1) = \pi_1$; $\pi(x_2) = \pi_2$; $\pi(x_3|x_1) = \pi_{3|1}$; $\pi(x_3|x_2) = \pi_{3|2}$; $\pi(x_3|x_1 \vee x_2) = ?$

The eight truth assignments over X, i.e., $(1,1,1)$, $(1,1,0)$, $(1,0,1)$, $(1,0,0)$, $(0,1,1)$, $(0,1,0)$, $(,0,0,1)$, $(0,0,0)$ lead to eight possible words over $S = \{x_1,\ x_2,\ x_3|x_1,\ x_3|x_2,\ x_3|(x_1 \vee x_2)\}$ to which are associated the probabilities $p_1, p_2, \ldots, p_8$. Problem (PC''') is as follows:

$$\min / \max\ z' = p'_1 + p'_3 + p'_5$$

subject to:

$$\begin{array}{llll}
p'_1+p'_2+p'_3+p'_4+p'_5+p'_6 & =1 & & \\
p'_1+p'_2+p'_3+p'_4+p'_5+p'_6+p'_7+p'_8 & =t & & \\
p'_1+p'_2+p'_3+p'_4 & =\pi_1 t & & \\
p'_1+p'_2 \qquad\quad +p'_5+p'_6 & =\pi_2 t & & \\
p'_1 \qquad +p'_3 & =\pi_1\pi_{3|1}t & & \\
p'_1 \qquad\qquad\quad +p'_5 & =\pi_2\pi_{3|2}t & & \\
 & t, p'_j \geq\ 0 & & j=1,2,\ldots,8,
\end{array}$$

where $p' = p \cdot t$.

Its dual (DC'''), there are 3 extreme points and 10 extreme rays for maximization, 3 extreme points and 10 extreme rays for minimization. After eliminations of t we obtain

$$L = \max\{\frac{\pi_2\pi_{3|2}}{\pi_2+\pi_1(1-\pi_{3|1})}, \frac{\pi_1\pi_{3|1}}{\pi_1+\pi_2(1-\pi_{3|2})}, \pi_2\pi_{3|2}, \pi_1\pi_{3|1}, \frac{\pi_1\pi_{3|1}}{\pi_1+\pi_2}, \frac{\pi_2\pi_{3|2}}{\pi_1+\pi_2}\}$$

which, keeping only non redundant expressions, is equivalent to:

$$L = \max\{\frac{\pi_2\pi_{3|2}}{\pi_2+\pi_1(1-\pi_{3|1})}, \frac{\pi_1\pi_{3|1}}{\pi_1+\pi_2(1-\pi_{3|2})}, \pi_2\pi_{3|2}, \pi_1\pi_{3|1}\}$$

and

$$U = \min\Big\{ \frac{\pi_1\pi_{3|1}+\pi_2\pi_{3|2}}{\pi_1\pi_{3|1}+\pi_2}, \frac{\pi_1\pi_{3|1}+\pi_2\pi_{3|2}}{\pi_2\pi_{3|2}+\pi_1}, (1-\pi_2)+\pi_2\pi_{3|2}, (1-\pi_1)+\pi_1\pi_{3|1}, \frac{\pi_1\pi_{3|1}+\pi_2}{\pi_1+\pi_2}, \frac{\pi_1+\pi_2\pi_{3|2}}{\pi_1+\pi_2}\Big\}$$

which, again keeping only non redundant expressions, is equivalent to

$U = \min\{\frac{\pi_1\pi_{3|1}+\pi_2\pi_{3|2}}{\pi_1\pi_{3|1}+\pi_2}, \frac{\pi_1\pi_{3|1}+\pi_2\pi_{3|2}}{\pi_2\pi_{3|2}+\pi_1}, (1-\pi_2)+\pi_2\pi_{3|2}, (1-\pi_1)+\pi_1\pi_{3|1}\}$. The consistency conditions are: $0 < \pi_1, \pi_2, \pi_1\pi_{3|1}, \pi_2\pi_{3|2} < 1$ and $0 \leq L \leq U \leq 1$.

This solution coincides with that obtained by Hailperin [5]. The time required for extreme points and rays enumeration was for both maximization and minimization of 0.01 second only on a Dell PC computer (233MHz). Applying REDLOG [23] immediately to (PC''') took 23 seconds, to obtain the same result. In order to apply Hailperin's approach

t is viewed as a variable in the (PC') problem above. The dual (DC') of this problem is

$$\max / \min u_1$$

subject to:

$$\begin{array}{lllllll}
u_1 + u_2 + & u_3 + & u_4 + & u_5 + & u_6 & \leq / \geq 1 \\
u_1 + u_2 + & u_3 + & u_4 & & & \leq / \geq 0 \\
u_1 + u_2 + & u_3 & + & u_5 & & \leq / \geq 1 \\
u_1 + u_2 + & u_3 & & & & \leq / \geq 0 \\
u_1 + u_2 & & u_4 & + & u_6 & \leq / \geq 1 \\
u_1 + u_2 & + & u_4 & & & \leq / \geq 0 \\
\quad u_2 & & & & & \leq / \geq 0 \\
\quad u_2 & & & & & \leq / \geq 0 \\
\multicolumn{6}{l}{-u_2 - \pi_1 u_{3|1} - \pi_2 \pi_{3|2} u_4 - \pi_1 \pi_{3|1} u_5 - \pi_2 \pi_{3|2} u_6} & \leq / \geq 0,
\end{array}$$

where the variables u_i are unrestricted in sign. As the right-hand side of the primal is $(1, 0, 0, 0, 0, 0)$, duality theorem allows reduction of the number of bases to consider. There are 14 variables (i.e., 6 dual variables plus 8 slack variables), 8 constraints, and 3003 bases. For maximization, we can limit the search to bases which contain u_1; there are 1716 such bases. For minimization, we can limit the search to bases which do not contain u_1, this leads to 1287 bases.

Checking the feasibility of a given basis corresponds to checking the feasibility of a linear system. For both the maximization and the minimization cases, only 6 out of the respectively 1716 and 1287 bases are feasible. Using REDUCE [22] to find them required 182 seconds. Again, the same result as above was obtained, but without the consistency conditions.

4 Verifying and Improving Inference Rules

Frisch and Haddawy [19] have gathered a series of inference rules for conditional PSAT, to be used in their anytime deduction algorithm. Each of these rules had been proved by hand. We consider here those conditional rules where not all S_i are subject to the same condition. All results of this type were deduced again, in an automated way, with algorithm VRE. A few of them are presented in Table 1. In one case, i.e., rule (ix), the bounds obtained differ from those from the literature (Amarger, Dubois and Prade [25]), which are

$$\underline{\pi}(x_3|x_1) = \underline{\pi}_2 \cdot \max\left\{0, 1 - \frac{1 - \underline{\pi}_3}{\underline{\pi}_1}\right\}$$

and

$$\overline{\pi}(x_3|x_1) = \min\left\{1, 1 - \underline{\pi}_2 + \frac{\underline{\pi}_2 \overline{\pi}_3}{\underline{\pi}_1}, \frac{\overline{\pi}_2 \overline{\pi}_3}{\underline{\pi}_1 \underline{\pi}_4}, \frac{\overline{\pi}_2 \overline{\pi}_3}{\underline{\pi}_1 \underline{\pi}_4}(1 - \underline{\pi}_4) + \overline{\pi}_2\right\}$$

Table 1: Derived inference rules with conditioning sentences.

	Inference Rules	Probability Assigned	Consistency Conditions	$\underline{\pi}_?$ Maximum of:	$\overline{\pi}_?$ Minimum of:
(v)	x_2	$[\underline{\pi}_1, \overline{\pi}_1]$	$\underline{\pi}_i \leq 1 \quad i = 1,2$		1
	$x_1 \wedge x_2$	$[\underline{\pi}_2, \overline{\pi}_2]$	$\underline{\pi}_i, \overline{\pi}_i > 0 \quad i = 1,2$	$\frac{\underline{\pi}_2}{\overline{\pi}_1}$	
	$x_1 \vert x_2$	$\pi_?$	$\underline{\pi}_i \leq \overline{\pi}_i \quad i = 1,2$		$\frac{\overline{\pi}_2}{\underline{\pi}_1}$
			$\underline{\pi}_2 \leq \overline{\pi}_1$		
(vi)	$x_2 \vert x_1$	$[\underline{\pi}_1, \overline{\pi}_1]$	$\underline{\pi}_1 \leq 1 \; \overline{\pi}_1 \geq 0$		1
	$x_1 \wedge x_2$	$[\underline{\pi}_2, \overline{\pi}_2]$	$\underline{\pi}_1 > 0 \; \overline{\pi}_2 > 0$	$\frac{\underline{\pi}_2}{\overline{\pi}_1}$	$\frac{\overline{\pi}_2}{\underline{\pi}_1}$
			$\underline{\pi}_i \leq \overline{\pi}_i \quad i = 1,2$		
	x_1	$\pi_?$	$\underline{\pi}_2 \leq \overline{\pi}_1$		
(vii)	x_2	$[\underline{\pi}_1, \overline{\pi}_1]$	$\underline{\pi}_i \leq 1 \quad i = 1,2$		
	$x_1 \vert x_2$	$[\underline{\pi}_2, \overline{\pi}_2]$	$\overline{\pi}_i \geq 0 \quad i = 1,2$	$\underline{\pi}_1 \cdot \underline{\pi}_2$	$\overline{\pi}_1 \cdot \overline{\pi}_2$
			$\underline{\pi}_i \leq \overline{\pi}_i \quad i = 1,2$		
	$x_1 \wedge x_2$	$\pi_?$			
(ix)	$x_1 \vert x_2$	$[\underline{\pi}_1, \overline{\pi}_1]$	$\underline{\pi}_i < 1 \quad i = 1, \ldots, 4$	0	1
	$x_2 \vert x_1$	$[\underline{\pi}_2, \overline{\pi}_2]$	$\overline{\pi}_i < 1 \quad i = 1,3,4$	$\frac{\underline{\pi}_2 \cdot (\underline{\pi}_1 + \underline{\pi}_3 - 1)}{\underline{\pi}_1}$	$\frac{\underline{\pi}_1 \cdot (1 - \underline{\pi}_2) + \underline{\pi}_2 \overline{\pi}_3}{\underline{\pi}_1}$
	$x_3 \vert x_2$	$[\underline{\pi}_3, \overline{\pi}_3]$	$\overline{\pi}_2 \leq 1$		$\frac{\overline{\pi}_2 \cdot (\underline{\pi}_1 \underline{\pi}_4 - \underline{\pi}_4 \overline{\pi}_3 + \overline{\pi}_3)}{\underline{\pi}_1 \underline{\pi}_4}$
	$x_2 \vert x_3$	$[\underline{\pi}_4, \overline{\pi}_4]$	$\underline{\pi}_i, \overline{\pi}_i \geq 0 \quad i = 1, \ldots, 4$		$\frac{\overline{\pi}_2 \overline{\pi}_3}{\underline{\pi}_1 \underline{\pi}_4}$
	$x_3 \vert x_1$	$\pi_?$	$\underline{\pi}_i \leq \overline{\pi}_i \quad i = 1, \ldots, 4$		$\frac{\overline{\pi}_2 \cdot (\underline{\pi}_1 \underline{\pi}_4 + \underline{\pi}_4 + 1)}{\underline{\pi}_1 \underline{\pi}_4}$
					$\frac{\overline{\pi}_3}{\underline{\pi}_1 \underline{\pi}_4 + \overline{\pi}_3 \cdot (1 - \underline{\pi}_4)}$

and the upper bound found by VRE is tighter. Indeed, consider the following assignments: $\underline{\pi}_1 = 0.20, \overline{\pi}_1 = 0.20$, $\underline{\pi}_2 = 0.15, \overline{\pi}_2 = 0.20$, $\underline{\pi}_3 = 0.11, \overline{\pi}_3 = 0.11$, $\underline{\pi}_4 = 0.10$ and $\overline{\pi}_4 = 0.10$, we find with our upper bound: $\overline{\pi}(x_3|x_1) = 0.924$ and with the previous one $\overline{\pi}(x_3|x_1) = 0.932$. The lower bounds are the same.

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Annexe

Solution of the Inference Rule (ix)

$$-\underline{\pi}_1 z + \underline{\pi}_{3|1} z \geq 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } -\underline{\pi}_2 + \underline{\pi}_{3|2} z \geq 0 \text{ and } \underline{\pi}_2 < 1 \text{ and } -\underline{\pi}_{3|1} z + \overline{\pi}_1 z \geq 0 \text{ and } -\underline{\pi}_{3|1} z + \overline{\pi}_{3|1} z \geq 0 \text{ and } -\underline{\pi}_{3|1} z + z \geq 0 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } -\underline{\pi}_{3|2} z + \overline{\pi}_{3|2} z \geq 0 \text{ and } -\underline{\pi}_{3|2} z + z \geq 0 \text{ and } -\underline{\pi}_{3|2} z + \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1 \text{ and } z \leq 1 \text{ and } z > 0$$

or

$$-\underline{\pi}_1 \underline{\pi}_{3|2}^2 \overline{\pi}_2 + \underline{\pi}_1 \underline{\pi}_{3|2}^2 z + \underline{\pi}_1 \underline{\pi}_{3|2} \overline{\pi}_2 - \underline{\pi}_1 \underline{\pi}_{3|2} z + \underline{\pi}_{3|1} \underline{\pi}_{3|2}^2 \overline{\pi}_2 - 2\underline{\pi}_{3|1} \underline{\pi}_{3|2} \overline{\pi}_2 + \underline{\pi}_{3|1} \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } -\underline{\pi}_2 + \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_2 < 1 \text{ and } -\underline{\pi}_{3|1} \underline{\pi}_{3|2}^2 \overline{\pi}_2 + 2\underline{\pi}_{3|1} \underline{\pi}_{3|2} \overline{\pi}_2 - \underline{\pi}_{3|1} \overline{\pi}_2 + \underline{\pi}_{3|2}^2 \overline{\pi}_1 \overline{\pi}_2 - \underline{\pi}_{3|2}^2 \overline{\pi}_1 z - \underline{\pi}_{3|2} \overline{\pi}_1 \overline{\pi}_2 + \underline{\pi}_{3|2} \overline{\pi}_1 z \geq 0 \text{ and } -\underline{\pi}_{3|1} \underline{\pi}_{3|2} \overline{\pi}_2 + \underline{\pi}_{3|1} \underline{\pi}_{3|2} z + \underline{\pi}_{3|1} \overline{\pi}_2 - \underline{\pi}_{3|1} z + \underline{\pi}_{3|2} \overline{\pi}_2 \overline{\pi}_{3|1} - \underline{\pi}_{3|2} \overline{\pi}_{3|1} z - \overline{\pi}_2 \overline{\pi}_{3|1} + \overline{\pi}_{3|1} z \geq 0 \text{ and } \underline{\pi}_{3|2} \overline{\pi}_2 - \underline{\pi}_{3|2} z - \overline{\pi}_2 + z > 0 \text{ and } -\underline{\pi}_{3|1} \underline{\pi}_{3|2} \overline{\pi}_2 + \underline{\pi}_{3|1} \underline{\pi}_{3|2} z + \underline{\pi}_{3|1} \overline{\pi}_2 - \underline{\pi}_{3|1} z + \underline{\pi}_{3|2} \overline{\pi}_2 - \underline{\pi}_{3|2} z - \overline{\pi}_2 + z \geq 0 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } -\underline{\pi}_{3|2}^2 \overline{\pi}_2 + \underline{\pi}_{3|2}^2 z + \underline{\pi}_{3|2} \overline{\pi}_2 \overline{\pi}_{3|2} + \underline{\pi}_{3|2} \overline{\pi}_2 - \underline{\pi}_{3|2} \overline{\pi}_{3|2} z - \underline{\pi}_{3|2} z - \overline{\pi}_2 \overline{\pi}_{3|2} + \overline{\pi}_{3|2} z \geq 0 \text{ and } \underline{\pi}_{3|2} \overline{\pi}_2 - \underline{\pi}_{3|2} z - \overline{\pi}_2 + z > 0 \text{ and } \underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|2} \overline{\pi}_2 - \underline{\pi}_{3|2} z + \overline{\pi}_2 \leq 0 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } -\overline{\pi}_2 + z \geq 0 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1 \text{ and } z \leq 1$$

or

$$-\underline{\pi}_1 \underline{\pi}_{3|2} z + \underline{\pi}_{3|1} \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } -\underline{\pi}_2 + \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_2 < 1 \text{ and } -\underline{\pi}_{3|1} \overline{\pi}_2 + \underline{\pi}_{3|2} \overline{\pi}_1 z \geq 0 \text{ and } -\underline{\pi}_{3|1} \overline{\pi}_2 + \underline{\pi}_{3|2} z \geq 0 \text{ and } -\underline{\pi}_{3|1} z + \overline{\pi}_{3|1} z \geq 0 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } -\underline{\pi}_{3|2} z + \overline{\pi}_2 + z - 1 \leq 0 \text{ and } -\underline{\pi}_{3|2} z + \overline{\pi}_2 \geq 0 \text{ and } -\underline{\pi}_{3|2} z + \overline{\pi}_{3|2} z \geq 0 \text{ and } -\underline{\pi}_{3|2} z + z \geq 0 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1 \text{ and } z > 0$$

or

$$-\underline{\pi}_1 \underline{\pi}_2 \underline{\pi}_{3|2}^2 + \underline{\pi}_1 \underline{\pi}_2 \underline{\pi}_{3|2} + \underline{\pi}_1 \underline{\pi}_{3|2}^2 z - \underline{\pi}_1 \underline{\pi}_{3|2} z + \underline{\pi}_2 \underline{\pi}_{3|1} \underline{\pi}_{3|2}^2 - 2\underline{\pi}_2 \underline{\pi}_{3|1} \underline{\pi}_{3|2} + \underline{\pi}_2 \underline{\pi}_{3|1} \geq 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } -\underline{\pi}_2 \underline{\pi}_{3|1} \underline{\pi}_{3|2} + \underline{\pi}_2 \underline{\pi}_{3|1} + \underline{\pi}_2 \underline{\pi}_{3|2} \overline{\pi}_{3|1} - \underline{\pi}_2 \overline{\pi}_{3|1} + \underline{\pi}_{3|1} \underline{\pi}_{3|2} z - \underline{\pi}_{3|1} z - \underline{\pi}_{3|2} \overline{\pi}_{3|1} z + \overline{\pi}_{3|1} z \geq 0 \text{ and } -\underline{\pi}_2 \underline{\pi}_{3|1} \underline{\pi}_{3|2}^2 + 2\underline{\pi}_2 \underline{\pi}_{3|1} \underline{\pi}_{3|2} - \underline{\pi}_2 \underline{\pi}_{3|1} + \underline{\pi}_2 \underline{\pi}_{3|2}^2 \overline{\pi}_1 - \underline{\pi}_2 \underline{\pi}_{3|2} \overline{\pi}_1 - \underline{\pi}_{3|2}^2 \overline{\pi}_1 z + \underline{\pi}_{3|2} \overline{\pi}_1 z \geq 0 \text{ and } \underline{\pi}_2 \underline{\pi}_{3|2} - \underline{\pi}_2 - \underline{\pi}_{3|2} z + z > 0 \text{ and } -\underline{\pi}_2 \underline{\pi}_{3|1} \underline{\pi}_{3|2} + \underline{\pi}_2 \underline{\pi}_{3|1} + \underline{\pi}_2 \underline{\pi}_{3|2} -$$

$\underline{\pi}_2+\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}z-\underline{\pi}_{3|2}z+z \geq 0$ and $-\underline{\pi}_2\underline{\pi}_{3|2}^2+\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|2}+\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_2\overline{\pi}_{3|2}+\underline{\pi}_{3|2}^2z-\underline{\pi}_{3|2}\overline{\pi}_{3|2}z-\underline{\pi}_{3|2}z+\overline{\pi}_{3|2}z \geq 0$ and $\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_2-\underline{\pi}_{3|2}z+z>0$ and $\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_2-\underline{\pi}_{3|2}^2z+\underline{\pi}_{3|2}z \geq 0$ and $-\underline{\pi}_2+z\geq 0$ and $-\underline{\pi}_2+\overline{\pi}_2 \geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$

or

$-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_2\underline{\pi}_{3|1}\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_{3|2}\overline{\pi}_1z\geq 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_{3|2}z\geq 0$ and $\underline{\pi}_2-\underline{\pi}_{3|2}z+z-1\leq 0$ and $-\underline{\pi}_2+\underline{\pi}_{3|2}z\leq 0$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $-\underline{\pi}_{3|1}z+\overline{\pi}_{3|1}z\geq 0$ and $\underline{\pi}_{3|1}<1$ and $-\underline{\pi}_{3|2}z+\overline{\pi}_{3|2}z\geq 0$ and $-\underline{\pi}_{3|2}z+z\geq 0$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z>0$

or

$-\underline{\pi}_1\underline{\pi}_{3|1}z+\underline{\pi}_1\underline{\pi}_{3|1}+\underline{\pi}_1z-\underline{\pi}_1+\underline{\pi}_{3|1}^2-2\underline{\pi}_{3|1}+1\geq 0$ and $\underline{\pi}_1<1$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}\overline{\pi}_1z+\underline{\pi}_{3|1}\overline{\pi}_1-2\underline{\pi}_{3|1}+\overline{\pi}_1z-\overline{\pi}_1+1\leq 0$ and $\underline{\pi}_{3|1}^2z-\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}\overline{\pi}_{3|1}z+\underline{\pi}_{3|1}\overline{\pi}_{3|1}-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1}\leq 0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1<0$ and $\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}+z\leq 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}-\underline{\pi}_{3|1}\overline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_{3|2}-\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}+\overline{\pi}_{3|2}z-\overline{\pi}_{3|2}\leq 0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1<0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}-\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}+z-1\leq 0$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $-\overline{\pi}_2+1\leq 0$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$ and $z\geq 0$

or

$-\underline{\pi}_1\underline{\pi}_{3|1}z+\underline{\pi}_1\underline{\pi}_{3|1}+\underline{\pi}_1z-\underline{\pi}_1+\underline{\pi}_{3|1}^2\overline{\pi}_2-2\underline{\pi}_{3|1}\overline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}^2\overline{\pi}_2-\underline{\pi}_{3|1}\overline{\pi}_1z+\underline{\pi}_{3|1}\overline{\pi}_1-2\underline{\pi}_{3|1}\overline{\pi}_2+\overline{\pi}_1z-\overline{\pi}_1+\overline{\pi}_2\leq 0$ and $\underline{\pi}_{3|1}^2\overline{\pi}_2-2\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+\overline{\pi}_2+z-1\leq 0$ and $-\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}^2+2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}-\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|2}\leq 0$ and $\underline{\pi}_{3|1}^2z-\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}\overline{\pi}_{3|1}z+\underline{\pi}_{3|1}\overline{\pi}_{3|1}-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1}\leq 0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1<0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}-\underline{\pi}_{3|1}\overline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_{3|2}-\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}+\overline{\pi}_{3|2}z-\overline{\pi}_{3|2}\leq 0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1<0$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_2+z-1\geq 0$ and $\overline{\pi}_2\leq 1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$

or

$-\underline{\pi}_1\underline{\pi}_{3|1}z+\underline{\pi}_1\underline{\pi}_{3|1}+\underline{\pi}_1z-\underline{\pi}_1+\underline{\pi}_2\underline{\pi}_{3|1}^2-2\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2\geq 0$ and $\underline{\pi}_1<1$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2-2\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2-\underline{\pi}_{3|1}\overline{\pi}_1z+\underline{\pi}_{3|1}\overline{\pi}_1+\overline{\pi}_1z-\overline{\pi}_1\leq 0$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2-2\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1\leq 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}+2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}-\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}+\underline{\pi}_{3|2}\leq 0$ and $\underline{\pi}_2+z-1\geq 0$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}^2z-\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}\overline{\pi}_{3|1}z+\underline{\pi}_{3|1}\overline{\pi}_{3|1}-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1}\leq 0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1<0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}-\underline{\pi}_{3|1}\overline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_{3|2}-\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}+\overline{\pi}_{3|2}z-\overline{\pi}_{3|2}\leq 0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1<0$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|1}z-\underline{\pi}_1\overline{\pi}_2+\underline{\pi}_1z+\underline{\pi}_{3|1}^2\overline{\pi}_2-2\underline{\pi}_{3|1}\overline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}^2\overline{\pi}_2+\underline{\pi}_{3|1}\overline{\pi}_1\overline{\pi}_2-\underline{\pi}_{3|1}\overline{\pi}_1z-2\underline{\pi}_{3|1}\overline{\pi}_2-\overline{\pi}_1\overline{\pi}_2+\overline{\pi}_1z+\overline{\pi}_2\leq 0$ and $-\underline{\pi}_{3|1}^2\overline{\pi}_2+\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}\overline{\pi}_2\overline{\pi}_{3|1}+\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_{3|1}\overline{\pi}_{3|1}z-\underline{\pi}_{3|1}z-\overline{\pi}_2\overline{\pi}_{3|1}+\overline{\pi}_{3|1}z\leq 0$ and $\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_{3|1}z-\overline{\pi}_2+z<0$ and $\underline{\pi}_{3|1}^2\overline{\pi}_2-\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_{3|1}z+z\leq 0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_2\overline{\pi}_{3|2}-\underline{\pi}_{3|1}\overline{\pi}_{3|2}z+\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|2}z-\overline{\pi}_2\overline{\pi}_{3|2}+\overline{\pi}_{3|2}z\leq 0$ and $\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_{3|1}z-\overline{\pi}_2+z<0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_{3|1}z+\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|2}z-\overline{\pi}_2+z\leq 0$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $-\overline{\pi}_2+z\leq 0$ and $\overline{\pi}_2\leq 1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\geq 0$

or

$-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $-\underline{\pi}_{3|1}\overline{\pi}_2+\overline{\pi}_1z-\overline{\pi}_1+\overline{\pi}_2\leq 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_2+\underline{\pi}_{3|2}\overline{\pi}_1z+\underline{\pi}_{3|2}\overline{\pi}_2\leq 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2-\overline{\pi}_1\overline{\pi}_2+\overline{\pi}_1z+\overline{\pi}_2\geq 0$ and $-\underline{\pi}_{3|1}+\overline{\pi}_{3|1}\geq 0$ and $-\underline{\pi}_{3|1}-\overline{\pi}_1+1\leq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$

or

$-\underline{\pi}_1z+z\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2\underline{\pi}_{3|1}+z\geq 0$ and $\underline{\pi}_2<1$ and $-\overline{\pi}_1z+z\leq 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2+z\leq 0$ and $-\underline{\pi}_{3|1}z+\overline{\pi}_{3|1}z\geq 0$ and $-\underline{\pi}_{3|1}+z\leq 0$ and $-\underline{\pi}_{3|1}z+z\geq 0$ and $\underline{\pi}_{3|1}<1$ and $-\underline{\pi}_{3|2}z+\overline{\pi}_{3|2}z\geq 0$ and $z>0$ and $-\underline{\pi}_{3|2}z+z\geq 0$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\geq 0$

or

$\underline{\pi}_1\underline{\pi}_{3|1}z-\underline{\pi}_1\underline{\pi}_{3|1}-\underline{\pi}_1z+\underline{\pi}_1-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1\leq 0$ and $\underline{\pi}_1<1$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2-2\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1\leq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}\overline{\pi}_1z-\underline{\pi}_{3|1}\overline{\pi}_1-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}-\overline{\pi}_1z+\overline{\pi}_1+z-1\geq 0$ and $\underline{\pi}_{3|1}^2\overline{\pi}_2-2\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+\overline{\pi}_2+z-1\geq 0$ and $\underline{\pi}_{3|1}^2z-\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}\overline{\pi}_{3|1}z+\underline{\pi}_{3|1}\overline{\pi}_{3|1}-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1}\leq 0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+$

$z-1<0$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}^2-2\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}+\underline{\pi}_{3|2}z\le 0$ and $\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}+z\ge 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}-\underline{\pi}_{3|1}\overline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_{3|2}-\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}+\overline{\pi}_{3|2}z-\overline{\pi}_{3|2}\le 0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1<0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1\le 0$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\le 1$

or

$\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\ge0$ and $\underline{\pi}_2<1$ and $-\underline{\pi}_{3|1}\overline{\pi}_2+\overline{\pi}_2+z-1\le0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2+\underline{\pi}_{3|2}z\le0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2+z\ge0$ and $-\underline{\pi}_{3|1}+\overline{\pi}_{3|1}\ge0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\ge0$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $-\overline{\pi}_1+1\le0$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$

or

$-\underline{\pi}_1z+z\ge0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_{3|2}z\ge0$ and $\underline{\pi}_2<1$ and $-\overline{\pi}_1z+z\le0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2+\underline{\pi}_{3|2}z\le0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}+\underline{\pi}_{3|2}z\le0$ and $-\underline{\pi}_{3|1}z+\overline{\pi}_{3|1}z\ge0$ and $-\underline{\pi}_{3|1}z+z\ge0$ and $\underline{\pi}_{3|1}<1$ and $-\underline{\pi}_{3|2}z+\overline{\pi}_{3|2}z\ge0$ and $-\underline{\pi}_{3|2}z+z\ge0$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z>0$

or

$-\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}+\underline{\pi}_{3|2}\ge0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}+2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}-\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}+\underline{\pi}_{3|2}\ge0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1z+\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}+\underline{\pi}_{3|2}\overline{\pi}_1z-\underline{\pi}_{3|2}\overline{\pi}_1+\underline{\pi}_{3|2}\le0$ and $-\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}^2+2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}-\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|2}\le0$ and $\underline{\pi}_{3|1}^2z-\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}\overline{\pi}_{3|1}z+\underline{\pi}_{3|1}\overline{\pi}_{3|1}-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1}\le0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1<0$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}^2-2\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}+\underline{\pi}_{3|2}z\le0$ and $2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}-\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}^2-3\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}+\underline{\pi}_{3|2}z\ge0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}-\underline{\pi}_{3|1}\overline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_{3|2}-\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}+\overline{\pi}_{3|2}z-\overline{\pi}_{3|2}\le0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1<0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}-\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}+z-1\le0$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\le1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2+\underline{\pi}_1\underline{\pi}_{3|2}^2z+\underline{\pi}_{3|1}^2\overline{\pi}_2-2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|2}^2\overline{\pi}_2\ge0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\ge0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}^2\overline{\pi}_2+\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1z-2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|2}^2\overline{\pi}_1\overline{\pi}_2+\underline{\pi}_{3|2}^2\overline{\pi}_1z+\underline{\pi}_{3|2}^2\overline{\pi}_2\le0$ and $-\underline{\pi}_{3|1}^2\overline{\pi}_2+\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_2\overline{\pi}_{3|1}-\underline{\pi}_{3|1}\overline{\pi}_{3|1}z-\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1}+\underline{\pi}_{3|2}\overline{\pi}_{3|1}z\le0$ and $\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_{3|1}z-\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|2}z<0$ and $-\underline{\pi}_{3|1}^2\overline{\pi}_2+\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_{3|1}z-\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|2}z\le0$ and $\underline{\pi}_{3|1}^2\overline{\pi}_2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}^2z\le0$ and $-\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}^2\overline{\pi}_2+\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}^2z\ge0$ and $-\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}^2z+\underline{\pi}_{3|1}^2+\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2z+\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-2\underline{\pi}_{3|1}\underline{\pi}_{3|2}-\underline{\pi}_{3|2}^2\overline{\pi}_2+\underline{\pi}_{3|2}^2\ge0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_2\overline{\pi}_{3|2}-\underline{\pi}_{3|1}\overline{\pi}_{3|2}z+\underline{\pi}_{3|2}^2\overline{\pi}_2-\underline{\pi}_{3|2}^2z-\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|2}+\underline{\pi}_{3|2}\overline{\pi}_{3|2}z\le0$ and $\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_{3|1}z-\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|2}z<0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_2-\underline{\pi}_{3|1}z+\underline{\pi}_{3|2}^2\overline{\pi}_2-\underline{\pi}_{3|2}^2z-\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|2}z\le0$ and $-\underline{\pi}_{3|1}+\underline{\pi}_{3|2}<>0$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$

or

$\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|1}-\underline{\pi}_1\underline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|1}z+\underline{\pi}_1z+\underline{\pi}_2\underline{\pi}_{3|1}^2-2\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2\ge0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2\underline{\pi}_{3|1}^2+\underline{\pi}_2\underline{\pi}_{3|1}\overline{\pi}_{3|1}+\underline{\pi}_2\underline{\pi}_{3|1}-\underline{\pi}_2\overline{\pi}_{3|1}+\underline{\pi}_{3|1}^2z-\underline{\pi}_{3|1}\overline{\pi}_{3|1}z-\underline{\pi}_{3|1}z+\overline{\pi}_{3|1}z\le0$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2+\underline{\pi}_2\underline{\pi}_{3|1}\overline{\pi}_1-2\underline{\pi}_2\underline{\pi}_{3|1}-\underline{\pi}_2\overline{\pi}_1+\underline{\pi}_2-\underline{\pi}_{3|1}\overline{\pi}_1z+\overline{\pi}_1z\le0$ and $\underline{\pi}_2\underline{\pi}_{3|1}-\underline{\pi}_2-\underline{\pi}_{3|1}z+z<0$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2-\underline{\pi}_2\underline{\pi}_{3|1}-\underline{\pi}_{3|1}z+z\le0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_2\underline{\pi}_{3|1}\overline{\pi}_{3|2}+\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_2\overline{\pi}_{3|2}+\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\overline{\pi}_{3|2}z-\underline{\pi}_{3|2}z+\overline{\pi}_{3|2}z\le0$ and $\underline{\pi}_2\underline{\pi}_{3|1}-\underline{\pi}_2-\underline{\pi}_{3|1}z+z<0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_2+\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}z-\underline{\pi}_{3|2}z+z\le0$ and $-\underline{\pi}_2+z\le0$ and $-\underline{\pi}_2+\overline{\pi}_2\ge0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\ge0$

or

$\underline{\pi}_1<1$ and $-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2+z-1\le0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_{3|2}z\le0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}+z\ge0$ and $-\underline{\pi}_2+\overline{\pi}_2\ge0$ and $-\underline{\pi}_{3|1}+\overline{\pi}_{3|1}\ge0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\ge0$ and $-\overline{\pi}_1+1\le0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$

or

$-\underline{\pi}_1+\overline{\pi}_1\ge0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2+\overline{\pi}_1z-\overline{\pi}_1\le0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}-\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_1+\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_{3|2}\overline{\pi}_1z\le0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}-\underline{\pi}_2\overline{\pi}_1+\underline{\pi}_2+\overline{\pi}_1z\ge0$ and $-\underline{\pi}_2+\overline{\pi}_2\ge0$ and $-\underline{\pi}_{3|1}+\overline{\pi}_{3|1}\ge0$ and $-\underline{\pi}_{3|1}-\overline{\pi}_1+1\le0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\ge0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$

or

$\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2}^2 z + \underline{\pi}_2\underline{\pi}_{3|1}^2 - 2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|2}^2 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2\underline{\pi}_{3|1}^2 + \underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|1}\overline{\pi}_{3|1} - \underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}z \leq 0$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2 + \underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 - 2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_1 + \underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}^2\overline{\pi}_1 z \leq 0$ and $\underline{\pi}_2\underline{\pi}_{3|1} - \underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z < 0$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2 - \underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2 z \leq 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}^2 + \underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|1} - \underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z \leq 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|1}^2 + \underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 - \underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2 z \geq 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 + \underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_2\underline{\pi}_{3|2}^2 + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|2}^2 \geq 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|1}\overline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|2} + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|2}z - \underline{\pi}_{3|2}^2 z + \underline{\pi}_{3|2}\overline{\pi}_{3|2}z \leq 0$ and $\underline{\pi}_2\underline{\pi}_{3|1} - \underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z < 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|1} + \underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z - \underline{\pi}_{3|2}^2 z + \underline{\pi}_{3|2}z \leq 0$ and $-\underline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $-\underline{\pi}_{3|1} + \underline{\pi}_{3|2} <> 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $-\underline{\pi}_{3|1} + \overline{\pi}_1 z - \underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_1 z \leq 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $-\overline{\pi}_2 + 1 \leq 0$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$ and $z \geq 0$

or

$-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 + \overline{\pi}_1 z - \overline{\pi}_1 + \overline{\pi}_2 \geq 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 + \overline{\pi}_1\overline{\pi}_2 + \overline{\pi}_1 z - \overline{\pi}_1 \leq 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_{3|1}\overline{\pi}_2 - \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_2 + \underline{\pi}_{3|2}\overline{\pi}_1 \leq 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_2 + z - 1 \geq 0$ and $\overline{\pi}_2 \leq 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|1} - \underline{\pi}_1 z + \underline{\pi}_1 - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 + \overline{\pi}_1 z - \overline{\pi}_1 \leq 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2 - 2\underline{\pi}_2\underline{\pi}_{3|1} + \underline{\pi}_2 - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 + \overline{\pi}_1 z - \overline{\pi}_1 \leq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}\overline{\pi}_1 - \underline{\pi}_{3|1}z + \underline{\pi}_{3|1} - \overline{\pi}_1 z + \overline{\pi}_1 + z - 1 \leq 0$ and $\underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}^2 + \underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}\overline{\pi}_1 - 2\underline{\pi}_{3|1}z + 2\underline{\pi}_{3|1} - \overline{\pi}_1 z + \overline{\pi}_1 + z - 1 \geq 0$ and $\underline{\pi}_{3|1}^2\overline{\pi}_2 - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 - 2\underline{\pi}_{3|1}\overline{\pi}_2 + \overline{\pi}_1 z - \overline{\pi}_1 + \overline{\pi}_2 \geq 0$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1}z - \underline{\pi}_{3|1} + \underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|2} \leq 0$ and $\underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 - 2\underline{\pi}_{3|1} + \overline{\pi}_1 z \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}\overline{\pi}_{3|1} - \underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + \overline{\pi}_{3|1}z - \overline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + z - 1 < 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_{3|1}\overline{\pi}_{3|2}z + \underline{\pi}_{3|1}\overline{\pi}_{3|2} - \underline{\pi}_{3|2}z + \underline{\pi}_{3|2} + \overline{\pi}_{3|2}z - \overline{\pi}_{3|2} \leq 0$ and $-\underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + z - 1 < 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2\underline{\pi}_{3|1} + \underline{\pi}_2 + \overline{\pi}_1 z - \overline{\pi}_1 \geq 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1} + \underline{\pi}_2\overline{\pi}_1 + \overline{\pi}_1 z - \overline{\pi}_1 \leq 0$ and $\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_2\underline{\pi}_{3|1} - \underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|2}\overline{\pi}_1 \leq 0$ and $\underline{\pi}_2 + z - 1 \geq 0$ and $-\underline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 - \overline{\pi}_1\overline{\pi}_2 + \overline{\pi}_1 z + \overline{\pi}_2 \geq 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 + \overline{\pi}_1 z \leq 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $-\overline{\pi}_2 + z \leq 0$ and $-\overline{\pi}_2 + 1 \geq 0$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \geq 0$

or

$-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_{3|1}\overline{\pi}_2 - \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_2 + \underline{\pi}_{3|2}\overline{\pi}_1 z \leq 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_1 \leq 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $-\overline{\pi}_2 + z \geq 0$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$-\underline{\pi}_1 z + \overline{\pi}_1 z \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2\underline{\pi}_{3|1} + \overline{\pi}_1 z \geq 0$ and $\underline{\pi}_2 < 1$ and $-\overline{\pi}_1 z + z \geq 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 + \overline{\pi}_1 z \leq 0$ and $-\underline{\pi}_{3|1}z + \overline{\pi}_1 z \geq 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_1 z \leq 0$ and $-\underline{\pi}_{3|1}z + \overline{\pi}_{3|1}z \geq 0$ and $\underline{\pi}_{3|1} < 1$ and $-\underline{\pi}_{3|2}z + \overline{\pi}_{3|2}z \geq 0$ and $z > 0$ and $-\underline{\pi}_{3|2}z + z \geq 0$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|1} - \underline{\pi}_1\overline{\pi}_1 z + \underline{\pi}_1\overline{\pi}_1 - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 + \overline{\pi}_1^2 z - \overline{\pi}_1^2 \leq 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2 - 2\underline{\pi}_2\underline{\pi}_{3|1}\overline{\pi}_1 + \underline{\pi}_2\overline{\pi}_1^2 - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 + \overline{\pi}_1^2 z - \overline{\pi}_1^2 \leq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}\overline{\pi}_{3|1} + \overline{\pi}_1\overline{\pi}_{3|1}z - \overline{\pi}_1\overline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + \overline{\pi}_1 z - \overline{\pi}_1 < 0$ and $\underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}\overline{\pi}_1 - \underline{\pi}_{3|1}z + \underline{\pi}_{3|1} - \overline{\pi}_1^2 z + \overline{\pi}_1^2 + \overline{\pi}_1 z - \overline{\pi}_1 \leq$

0 and $\underline{\pi}_{3|1}^2\overline{\pi}_2 - 2\underline{\pi}_{3|1}\overline{\pi}_1\overline{\pi}_2 - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 + \overline{\pi}_1^2\overline{\pi}_2 + \overline{\pi}_1^2 z - \overline{\pi}_1^2 \geq 0$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}^2 - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}\overline{\pi}_1 + \underline{\pi}_{3|2}\overline{\pi}_1^2 z \leq 0$ and $\underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}\overline{\pi}_1 + \overline{\pi}_1^2 z \geq 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_{3|1}\overline{\pi}_{3|2}z + \underline{\pi}_{3|1}\overline{\pi}_{3|2} - \underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}\overline{\pi}_1 + \overline{\pi}_1\overline{\pi}_{3|2}z - \overline{\pi}_1\overline{\pi}_{3|2} \leq 0$ and $-\underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + \overline{\pi}_1 z - \overline{\pi}_1 < 0$ and $-\underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + \overline{\pi}_1 z - \overline{\pi}_1 \leq 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_1 <> 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 + \overline{\pi}_1\overline{\pi}_2 + \overline{\pi}_1 z - \overline{\pi}_1 \leq 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 + \underline{\pi}_{3|2}\overline{\pi}_1 z \leq 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 + \overline{\pi}_1 z \geq 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_1 \geq 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_1 z + \overline{\pi}_1 z \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2\underline{\pi}_{3|1} + \underline{\pi}_{3|2}\overline{\pi}_1 z \geq 0$ and $\underline{\pi}_2 < 1$ and $-\overline{\pi}_1 z + z \geq 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 + \underline{\pi}_{3|2}\overline{\pi}_1 z \leq 0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}z - \underline{\pi}_{3|1} + \underline{\pi}_{3|2}\overline{\pi}_1 z \leq 0$ and $-\underline{\pi}_{3|1}z + \overline{\pi}_1 z \geq 0$ and $-\underline{\pi}_{3|1}z + \overline{\pi}_{3|1}z \geq 0$ and $\underline{\pi}_{3|1} < 1$ and $-\underline{\pi}_{3|2}z + \overline{\pi}_{3|2}z \geq 0$ and $-\underline{\pi}_{3|2}z + z \geq 0$ and $z \geq 0$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z > 0$

or

$\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|2}\overline{\pi}_1^2 z \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2 + 2\underline{\pi}_2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2} - \underline{\pi}_2\underline{\pi}_{3|1}^2 + 2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 - 2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 - \underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_1^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}^2\overline{\pi}_1^2 z \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}\overline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_{3|1}z \geq 0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_1 z > 0$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_1 z \geq 0$ and $-\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2\overline{\pi}_2 + 2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_{3|1}^2\overline{\pi}_2 + 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1\overline{\pi}_2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_2 + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|2}^2\overline{\pi}_1^2\overline{\pi}_2 + \underline{\pi}_{3|2}^2\overline{\pi}_1^2 z \leq 0$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^2 z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|2}\overline{\pi}_1^2 z \leq 0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_1 z \geq 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}\overline{\pi}_{3|2}z - \underline{\pi}_{3|2}^2\overline{\pi}_1 z + \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_{3|2}z \geq 0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_1 z > 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}z - \underline{\pi}_{3|2}^2\overline{\pi}_1 z + \underline{\pi}_{3|2}\overline{\pi}_1 z \geq 0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1} + \underline{\pi}_{3|2}\overline{\pi}_1 <> 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|1} - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|1}\overline{\pi}_1 + \underline{\pi}_{3|2}\overline{\pi}_1^2 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2 + 2\underline{\pi}_2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2} - \underline{\pi}_2\underline{\pi}_{3|1}^2 + 2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 - 2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 - \underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_1^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|2}^2\overline{\pi}_1^2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2} + \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}^2 - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 + 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|2}^2\overline{\pi}_1^2 z - \underline{\pi}_{3|2}^2\overline{\pi}_1^2 + \underline{\pi}_{3|2}^2\overline{\pi}_1 \geq 0$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2} - \underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|1}\overline{\pi}_{3|1} + \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1} + \underline{\pi}_{3|2}\overline{\pi}_1 > 0$ and $-\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2\overline{\pi}_2 + 2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_{3|1}^2\overline{\pi}_2 + 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1\overline{\pi}_2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_2 + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 - \underline{\pi}_{3|2}^2\overline{\pi}_1^2\overline{\pi}_2 + \underline{\pi}_{3|2}^2\overline{\pi}_1^2 \leq 0$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2} + \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}^2 - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 z + 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|2}^2\overline{\pi}_1^2 z \leq 0$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z + 2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2} + \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}^2 - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 + 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|2}^2\overline{\pi}_1^2 z \geq 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_{3|2} - \underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1}\overline{\pi}_{3|2} - \underline{\pi}_{3|2}^2\overline{\pi}_1 + \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_{3|2} \geq 0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1} + \underline{\pi}_{3|2}\overline{\pi}_1 > 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1} - \underline{\pi}_{3|2}^2\overline{\pi}_1 + \underline{\pi}_{3|2}\overline{\pi}_1 \geq 0$ and $-\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1} + \underline{\pi}_{3|2}\overline{\pi}_1 <> 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 - \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_2 + \underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_{3|1}\overline{\pi}_2 - \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_2 + \underline{\pi}_{3|2}\overline{\pi}_1 z \leq 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 + \underline{\pi}_{3|2}\overline{\pi}_1 z \leq 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_{3|1}\overline{\pi}_2 + \underline{\pi}_{3|2}\overline{\pi}_1 z \geq 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_{3|1}\overline{\pi}_2 - \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_2 + \underline{\pi}_{3|2}\overline{\pi}_1 \geq 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|2}\overline{\pi}_1^2 z + \underline{\pi}_{3|2}\overline{\pi}_1 z \leq 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2 + 2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 - 2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_1^2 - 2\underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_1 + \underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|2}^2\overline{\pi}_1^2 z + \underline{\pi}_{3|2}^2\overline{\pi}_1 z \leq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}z \leq 0$ and $-\underline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}z < 0$ and $\underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}z \leq 0$ and $\underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_1^2 z - 2\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}z \leq 0$ and $\underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_1^2 z - 2\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}z \geq 0$ and $\underline{\pi}_{3|1}^2\overline{\pi}_2 + 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 + \underline{\pi}_{3|2}^2\overline{\pi}_1^2\overline{\pi}_2 - \underline{\pi}_{3|2}^2\overline{\pi}_1^2 z - 2\underline{\pi}_{3|2}^2\overline{\pi}_1\overline{\pi}_2 + \underline{\pi}_{3|2}^2\overline{\pi}_1 z + \underline{\pi}_{3|2}^2\overline{\pi}_2 \geq 0$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}^2 + \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z + 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_{3|2}^2\overline{\pi}_1^2 z + \underline{\pi}_{3|2}^2\overline{\pi}_1^2 + \underline{\pi}_{3|2}^2\overline{\pi}_1 z - 2\underline{\pi}_{3|2}^2\overline{\pi}_1 + \underline{\pi}_{3|2}^2 \geq$

0 and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2\overline{\pi}_1 z - \underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_{3|2}z + \underline{\pi}_{3|2}\overline{\pi}_{3|2}z \le 0$ and $-\underline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}z < 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}^2\overline{\pi}_1 z - \underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}z \le 0$ and $-\underline{\pi}_{3|1} - \underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|2} <> 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_1 + \overline{\pi}_1 \ge 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2\underline{\pi}_{3|1} - \underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_{3|2}\overline{\pi}_1 z \ge 0$ and $\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_2\underline{\pi}_{3|1} - \underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|2}\overline{\pi}_1 z \le 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1} + \underline{\pi}_{3|2}\overline{\pi}_1 z \le 0$ and $\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_2\underline{\pi}_{3|1} + \underline{\pi}_{3|2}\overline{\pi}_1 z \ge 0$ and $\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_2\underline{\pi}_{3|1} - \underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|2}\overline{\pi}_1 \ge 0$ and $-\underline{\pi}_2 + \overline{\pi}_2 \ge 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \ge 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}z + \underline{\pi}_1\overline{\pi}_1 z - \underline{\pi}_1 z - \underline{\pi}_{3|1}\overline{\pi}_1 z - \overline{\pi}_1^2 z + \overline{\pi}_1 z \le 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2 + 2\underline{\pi}_2\underline{\pi}_{3|1}\overline{\pi}_1 - 2\underline{\pi}_2\underline{\pi}_{3|1} + \underline{\pi}_2\overline{\pi}_1^2 - 2\underline{\pi}_2\overline{\pi}_1 + \underline{\pi}_2 - \underline{\pi}_{3|1}\overline{\pi}_1 z - \overline{\pi}_1^2 z + \overline{\pi}_1 z \le 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z - \underline{\pi}_{3|1}z - \overline{\pi}_1\overline{\pi}_{3|1}z + \overline{\pi}_{3|1}z \le 0$ and $-\underline{\pi}_{3|1}z - \overline{\pi}_1 z + z < 0$ and $\underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}\overline{\pi}_1 z - 2\underline{\pi}_{3|1}z - \overline{\pi}_1 z + z \le 0$ and $\underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}z + \overline{\pi}_1^2 z - 2\overline{\pi}_1 z + z \le 0$ and $\underline{\pi}_{3|1}^2\overline{\pi}_2 + 2\underline{\pi}_{3|1}\overline{\pi}_1\overline{\pi}_2 - \underline{\pi}_{3|1}\overline{\pi}_1 z - 2\underline{\pi}_{3|1}\overline{\pi}_2 + \overline{\pi}_1^2\overline{\pi}_2 - \overline{\pi}_1^2 z - 2\overline{\pi}_1\overline{\pi}_2 + \overline{\pi}_1 z + \overline{\pi}_2 \ge 0$ and $\underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\overline{\pi}_1 z + 2\underline{\pi}_{3|1}\overline{\pi}_1 - 2\underline{\pi}_{3|1} - \overline{\pi}_1^2 z + \overline{\pi}_1^2 + \overline{\pi}_1 z - 2\overline{\pi}_1 + 1 \ge 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|2}z + \underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|2}z - \overline{\pi}_1\overline{\pi}_{3|2}z + \overline{\pi}_{3|2}z \le 0$ and $-\underline{\pi}_{3|1}z - \overline{\pi}_1 z + z < 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|2}z - \overline{\pi}_1 z + z \le 0$ and $-\underline{\pi}_{3|1} - \overline{\pi}_1 + 1 <> 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \ge 0$

or

$-\underline{\pi}_1 + \overline{\pi}_1 \ge 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2 + \overline{\pi}_2 \ge 0$ and $\underline{\pi}_2 < 1$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 + \overline{\pi}_1 z - \overline{\pi}_1 + \overline{\pi}_2 \le 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 - \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_2 + \underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}\overline{\pi}_2 \le 0$ and $-\underline{\pi}_{3|1}\overline{\pi}_2 - \overline{\pi}_1\overline{\pi}_2 + \overline{\pi}_1 z + \overline{\pi}_2 \ge 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_{3|1} - \overline{\pi}_1 + 1 \le 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \ge 0$ and $-\underline{\pi}_{3|1} - \overline{\pi}_1 + 1 <> 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|2}\overline{\pi}_1^2 z + \underline{\pi}_{3|2}\overline{\pi}_1 z \le 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2 + 2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 - 2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_1^2 - 2\underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_1 + \underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|2}^2\overline{\pi}_1^2 z + \underline{\pi}_{3|2}^2\overline{\pi}_1 z \le 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}z \le 0$ and $-\underline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}z < 0$ and $\underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}z \le 0$ and $\underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_1^2 z - 2\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}z \le 0$ and $\underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_1^2 z - 2\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}z \ge 0$ and $\underline{\pi}_{3|1}^2\overline{\pi}_2 + 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 + \underline{\pi}_{3|2}^2\overline{\pi}_1^2\overline{\pi}_2 - \underline{\pi}_{3|2}^2\overline{\pi}_1^2 z - 2\underline{\pi}_{3|2}^2\overline{\pi}_1\overline{\pi}_2 + \underline{\pi}_{3|2}^2\overline{\pi}_1 z + \underline{\pi}_{3|2}^2\overline{\pi}_2 \ge 0$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}^2 + \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z + 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_{3|2}^2\overline{\pi}_1^2 z + \underline{\pi}_{3|2}^2\overline{\pi}_1^2 + \underline{\pi}_{3|2}^2\overline{\pi}_1 z - 2\underline{\pi}_{3|2}^2\overline{\pi}_1 + \underline{\pi}_{3|2}^2 \ge 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2\overline{\pi}_1 z - \underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_{3|2}z + \underline{\pi}_{3|2}\overline{\pi}_{3|2}z \le 0$ and $-\underline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}z < 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}^2\overline{\pi}_1 z - \underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}z \le 0$ and $-\underline{\pi}_{3|1} - \underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|2} <> 0$ and $-\underline{\pi}_{3|1} - \overline{\pi}_1 + 1 <> 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|1} - \underline{\pi}_1 z + \underline{\pi}_1 - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 + \overline{\pi}_1 z - \overline{\pi}_1 \le 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2\underline{\pi}_{3|1}^2 - 2\underline{\pi}_2\underline{\pi}_{3|1} + \underline{\pi}_2 - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 + \overline{\pi}_1 z - \overline{\pi}_1 \le 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}\overline{\pi}_1 - \underline{\pi}_{3|1}z + \underline{\pi}_{3|1} - \overline{\pi}_1 z + \overline{\pi}_1 + z - 1 \le 0$ and $\underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}^2 + \underline{\pi}_{3|1}\overline{\pi}_1 z - \underline{\pi}_{3|1}\overline{\pi}_1 - 2\underline{\pi}_{3|1}z + 2\underline{\pi}_{3|1} - \overline{\pi}_1 z + \overline{\pi}_1 + z - 1 \ge 0$ and $\underline{\pi}_{3|1}^2\overline{\pi}_2 - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 - 2\underline{\pi}_{3|1}\overline{\pi}_2 + \overline{\pi}_1 z - \overline{\pi}_1 + \overline{\pi}_2 \ge 0$ and $\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1}z - \underline{\pi}_{3|1} + \underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|2} \le 0$ and $\underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 - 2\underline{\pi}_{3|1} + \overline{\pi}_1 z\underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}\overline{\pi}_{3|1} - \underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + \overline{\pi}_{3|1}z - \overline{\pi}_{3|1} \le 0$ and $-\underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + z - 1 < 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_{3|1}\overline{\pi}_{3|2}z + \underline{\pi}_{3|1}\overline{\pi}_{3|2} - \underline{\pi}_{3|2}z + \underline{\pi}_{3|2} + \overline{\pi}_{3|2}z - \overline{\pi}_{3|2} \le 0$ and $-\underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + z - 1 < 0$ and $-\underline{\pi}_{3|1} - \overline{\pi}_1 + 1 <> 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \le 1$

or

$-\underline{\pi}_1 + \overline{\pi}_1 \ge 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2\underline{\pi}_{3|1} + \underline{\pi}_2 + \overline{\pi}_1 z - \overline{\pi}_1 \le 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1} - \underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_{3|2}\overline{\pi}_1 z \le 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1} - \underline{\pi}_2\overline{\pi}_1 + \underline{\pi}_2 + \overline{\pi}_1 z \ge 0$ and $-\underline{\pi}_2 + \overline{\pi}_2 \ge 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_{3|1} - \overline{\pi}_1 + 1 \le 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \ge 0$ and $\underline{\pi}_2 < 1$ and $-\underline{\pi}_{3|1} - \overline{\pi}_1 + 1 <> 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2\underline{\pi}_{3|1}-\underline{\pi}_2\overline{\pi}_1+\underline{\pi}_2+\overline{\pi}_1 z\geq 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}+\overline{\pi}_1 z\leq 0$ and $-\underline{\pi}_2+z\leq 0$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $-\underline{\pi}_{3|1}+\overline{\pi}_{3|1}\geq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\geq 0$

or

$-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}-\underline{\pi}_2\underline{\pi}_{3|1}-\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_1+\underline{\pi}_{3|2}\overline{\pi}_1 z\leq 0$ and $-\underline{\pi}_2+z\geq 0$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $-\underline{\pi}_{3|1}+\overline{\pi}_{3|1}\geq 0$ and $-\underline{\pi}_{3|1}+\overline{\pi}_1\leq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$

or

$-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2\overline{\pi}_1+\overline{\pi}_1 z-\overline{\pi}_1\leq 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_{3|2}\overline{\pi}_1 z\leq 0$ and $-\underline{\pi}_2\underline{\pi}_{3|1}+\overline{\pi}_1 z\geq 0$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $-\underline{\pi}_{3|1}+\overline{\pi}_{3|1}\geq 0$ and $-\underline{\pi}_{3|1}+\overline{\pi}_1\geq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$

or

$\underline{\pi}_1 z-\underline{\pi}_1-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_1\overline{\pi}_{3|2}z-\underline{\pi}_1\overline{\pi}_{3|2}-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_1 z\underline{\pi}_1<1$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_1 z-\underline{\pi}_1\underline{\pi}_1 z-\underline{\pi}_1-\overline{\pi}_{3|1}+1\leq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $-\overline{\pi}_2+1\leq 0$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$ and $z\geq 0$

or

$\underline{\pi}_1 z-\underline{\pi}_1-\underline{\pi}_{3|1}\overline{\pi}_2+\overline{\pi}_2\geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_1\overline{\pi}_{3|2}z-\underline{\pi}_1\overline{\pi}_{3|2}-\underline{\pi}_{3|2}\overline{\pi}_2+\overline{\pi}_2\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_1 z-\underline{\pi}_1+\overline{\pi}_2>0$ and $\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_1 z-\underline{\pi}_1-\underline{\pi}_{3|2}\overline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_1 z-\underline{\pi}_1-\overline{\pi}_2\overline{\pi}_{3|1}+\overline{\pi}_2\leq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_2+z-1\geq 0$ and $\overline{\pi}_2\leq 1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$

or

$\underline{\pi}_1 z-\underline{\pi}_1-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2\geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_1\overline{\pi}_{3|2}z-\underline{\pi}_1\overline{\pi}_{3|2}-\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_2\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_1 z-\underline{\pi}_1+\underline{\pi}_2>0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_1 z-\underline{\pi}_1-\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_2\geq 0$ and $\underline{\pi}_1 z-\underline{\pi}_1-\underline{\pi}_2\overline{\pi}_{3|1}+\underline{\pi}_2\leq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $\underline{\pi}_2+z-1\geq 0$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$

or

$-\underline{\pi}_1\overline{\pi}_2+\underline{\pi}_1 z-\underline{\pi}_{3|1}\overline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_1\overline{\pi}_2\overline{\pi}_{3|2}+\underline{\pi}_1\overline{\pi}_{3|2}z-\underline{\pi}_{3|2}\overline{\pi}_2+\overline{\pi}_2\overline{\pi}_{3|2}\geq 0$ and $-\underline{\pi}_1\overline{\pi}_2+\underline{\pi}_1 z+\overline{\pi}_2>0$ and $\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_1\overline{\pi}_2+\underline{\pi}_1 z-\underline{\pi}_{3|2}\overline{\pi}_2+\overline{\pi}_2\geq 0$ and $-\underline{\pi}_1\overline{\pi}_2+\underline{\pi}_1 z-\overline{\pi}_2\overline{\pi}_{3|1}+\overline{\pi}_2\leq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $-\overline{\pi}_2+z\leq 0$ and $-\overline{\pi}_2+1\geq 0$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\geq 0$

or

$-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_{3|2}\overline{\pi}_2+\overline{\pi}_2\geq 0$ and $-\overline{\pi}_{3|1}+1\leq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $-\overline{\pi}_2+z\geq 0$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1}\geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_{3|2}\overline{\pi}_2+\overline{\pi}_2\overline{\pi}_{3|1}\geq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_1 z-\underline{\pi}_1-\overline{\pi}_2\overline{\pi}_{3|1}+\overline{\pi}_2\leq 0$ and $-\underline{\pi}_1\overline{\pi}_2+\underline{\pi}_1 z-\overline{\pi}_2\overline{\pi}_{3|1}+\overline{\pi}_2\geq 0$ and $-\underline{\pi}_1-\overline{\pi}_{3|1}+1\leq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$

or

$-\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\overline{\pi}_2+\underline{\pi}_{3|2}\overline{\pi}_2\leq 0$ and $-\underline{\pi}_{3|1}+\overline{\pi}_{3|1}\geq 0$ and $\underline{\pi}_1 z-\underline{\pi}_1-\underline{\pi}_{3|1}\overline{\pi}_2+\overline{\pi}_2\leq 0$ and $-\underline{\pi}_1\overline{\pi}_2+\underline{\pi}_1 z-\underline{\pi}_{3|1}\overline{\pi}_2+\overline{\pi}_2\geq 0$ and $-\underline{\pi}_1-\underline{\pi}_{3|1}+1\leq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$

or

$-\underline{\pi}_1\underline{\pi}_2+\underline{\pi}_1 z-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2\geq 0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_1\underline{\pi}_2\overline{\pi}_{3|2}-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_1\overline{\pi}_{3|2}z-\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_2\overline{\pi}_{3|2}\geq 0$ and $-\underline{\pi}_1\underline{\pi}_2+\underline{\pi}_1 z+\underline{\pi}_2>0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_1\underline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_1 z-\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_2\geq 0$ and $-\underline{\pi}_1\underline{\pi}_2+\underline{\pi}_1 z-\underline{\pi}_2\overline{\pi}_{3|1}+\underline{\pi}_2\leq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+z\leq 0$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\geq 0$

or

$-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_2\geq 0$ and $-\overline{\pi}_{3|1}+1\leq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+z\geq 0$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1}\geq 0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_2\overline{\pi}_{3|1}\geq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_1 z-\underline{\pi}_1-\underline{\pi}_2\overline{\pi}_{3|1}+\underline{\pi}_2\leq 0$ and $-\underline{\pi}_1\underline{\pi}_2+\underline{\pi}_1 z-\underline{\pi}_2\overline{\pi}_{3|1}+\underline{\pi}_2\geq 0$ and $-\underline{\pi}_1-\overline{\pi}_{3|1}+1\leq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$

or

$-\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2\underline{\pi}_{3|2}\leq 0$ and $-\underline{\pi}_{3|1}+\overline{\pi}_{3|1}\geq 0$ and $\underline{\pi}_1 z-\underline{\pi}_1-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2\leq 0$ and $-\underline{\pi}_1\underline{\pi}_2+\underline{\pi}_1 z-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2\geq 0$ and $-\underline{\pi}_1-\underline{\pi}_{3|1}+1\leq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$

or

$-\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2+\underline{\pi}_1\underline{\pi}_{3|2}^2+\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_2-2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|1}\overline{\pi}_2\leq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2+\underline{\pi}_1\underline{\pi}_{3|2}^2 z+\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-2\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_1 z-\underline{\pi}_1+\underline{\pi}_{3|2}^2\overline{\pi}_2-2\underline{\pi}_{3|2}\overline{\pi}_2+\overline{\pi}_2\geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2+\underline{\pi}_1\underline{\pi}_{3|2}^2+\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_{3|2}^2\overline{\pi}_2\overline{\pi}_{3|1}-2\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1}+\overline{\pi}_2\overline{\pi}_{3|1}\geq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}^2 z-\underline{\pi}_{3|2}\overline{\pi}_2-2\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}+\overline{\pi}_2+z-1\leq 0$ and $-\underline{\pi}_{3|2}^2\overline{\pi}_2+\underline{\pi}_{3|2}^2+\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|2}+\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|2}\overline{\pi}_{3|2}-\underline{\pi}_{3|2}-\overline{\pi}_2\overline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|2}-\overline{\pi}_2+1>0$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_2+z-1\geq 0$ and $-\overline{\pi}_2+1\geq 0$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$

or

$\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}\geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_1 z+\underline{\pi}_1-\underline{\pi}_{3|2}\overline{\pi}_1 z+\overline{\pi}_1 z-\overline{\pi}_1\leq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_{3|2}\overline{\pi}_{3|1}z+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1}\leq 0$ and $-\underline{\pi}_{3|2}z+z-1<0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_1 z+\underline{\pi}_1-\underline{\pi}_{3|2}z+z-1\leq 0$ and $\underline{\pi}_1<1$ and $\underline{\pi}_2-\underline{\pi}_{3|2}z+z-1\leq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $-\underline{\pi}_{3|2}z+\overline{\pi}_2+z-1\geq 0$ and $-\underline{\pi}_{3|2}z+\overline{\pi}_{3|2}z\geq 0$ and $-\underline{\pi}_{3|2}z+z\geq 0$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$ and $z>0$

or

$-\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2+\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_1\underline{\pi}_{3|2}^2-\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2-2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_2\underline{\pi}_{3|1}\leq 0$ and $-\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2+\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_1\underline{\pi}_{3|2}^2 z-2\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_1 z-\underline{\pi}_1+\underline{\pi}_2\underline{\pi}_{3|2}^2-2\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_2\geq 0$ and $-\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2+\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_1\underline{\pi}_{3|2}^2-\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_{3|1}-2\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1}+\underline{\pi}_2\overline{\pi}_{3|1}\geq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_2+\underline{\pi}_{3|2}^2 z-2\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}+z-1\leq 0$ and $-\underline{\pi}_2\underline{\pi}_{3|2}^2+\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|2}+\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_2\overline{\pi}_{3|2}+\underline{\pi}_{3|2}^2-\underline{\pi}_{3|2}\overline{\pi}_{3|2}-\underline{\pi}_{3|2}+\overline{\pi}_{3|2}\geq 0$ and $\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_2\underline{\pi}_{3|2}<1$ and $\underline{\pi}_2+z-1\geq 0$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$

or

$-\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2+\underline{\pi}_1\underline{\pi}_{3|2}^2 z+\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_2-2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|1}\overline{\pi}_2\leq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2+\underline{\pi}_1\underline{\pi}_{3|2}^2 z+\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}^2\overline{\pi}_2\overline{\pi}_{3|1}-2\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1}+\overline{\pi}_2\overline{\pi}_{3|1}\geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2+\underline{\pi}_1\underline{\pi}_{3|2}^2 z+\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}^2\overline{\pi}_2-2\underline{\pi}_{3|2}\overline{\pi}_2+\overline{\pi}_2\geq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $-\underline{\pi}_{3|2}^2\overline{\pi}_2+\underline{\pi}_{3|2}^2 z+\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|2}+\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|2}\overline{\pi}_{3|2}z-\underline{\pi}_{3|2}z-\overline{\pi}_2\overline{\pi}_{3|2}+\overline{\pi}_{3|2}z\geq 0$ and $\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|2}z-\overline{\pi}_2+z>0$ and $\underline{\pi}_{3|2}^2 z-\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_{3|2}z+\overline{\pi}_2\leq 0$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $-\overline{\pi}_2+z\geq 0$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$

or

$-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_2\leq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z+\overline{\pi}_2\overline{\pi}_{3|1}\geq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $-\underline{\pi}_{3|2}z+\overline{\pi}_2+z-1\leq 0$ and $-\underline{\pi}_{3|2}z+\overline{\pi}_2\geq 0$ and $-\underline{\pi}_{3|2}z+\overline{\pi}_{3|2}z\geq 0$ and $-\underline{\pi}_{3|2}z+z\geq 0$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z>0$

or

$-\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2+\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_1\underline{\pi}_{3|2}^2 z-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2-2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_2\underline{\pi}_{3|1}\leq 0$ and $-\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2+\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_1\underline{\pi}_{3|2}^2 z-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_{3|1}-2\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1}+\underline{\pi}_2\overline{\pi}_{3|1}\geq 0$ and $-\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2+\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_1\underline{\pi}_{3|2}^2 z-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_2\underline{\pi}_{3|2}^2-2\underline{\pi}_2\underline{\pi}_{3|2}+\underline{\pi}_2\geq 0$ and $-\underline{\pi}_1+\overline{\pi}_1\geq 0$ and $\underline{\pi}_1<1$ and $-\underline{\pi}_2\underline{\pi}_{3|2}^2+\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|2}+\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_2\overline{\pi}_{3|2}+\underline{\pi}_{3|2}^2 z-\underline{\pi}_{3|2}\overline{\pi}_{3|2}z-\underline{\pi}_{3|2}z+\overline{\pi}_{3|2}z\geq 0$ and $\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_2-\underline{\pi}_{3|2}z+z>0$ and $\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_2-\underline{\pi}_{3|2}^2 z+\underline{\pi}_{3|2}z\geq 0$ and $-\underline{\pi}_2+z\geq 0$ and $-\underline{\pi}_2+\overline{\pi}_2\geq 0$ and $\underline{\pi}_2<1$ and $\underline{\pi}_{3|1}<1$ and $\underline{\pi}_{3|2}<1$ and $\overline{\pi}_1<1$ and $\overline{\pi}_{3|1}<1$ and $\overline{\pi}_{3|2}<1$ and $z\leq 1$

or

$-\underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_2\underline{\pi}_{3|1} \leq 0 \text{ and } -\underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_2\overline{\pi}_{3|1} \geq 0 \text{ and } -\underline{\pi}_1 + \overline{\pi}_1 \geq 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } \underline{\pi}_2 - \underline{\pi}_{3|2}z + z - 1 \leq 0 \text{ and } -\underline{\pi}_2 + \underline{\pi}_{3|2}z \leq 0 \text{ and } -\underline{\pi}_2 + \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } -\underline{\pi}_{3|2}z + \overline{\pi}_{3|2}z \geq 0 \text{ and } -\underline{\pi}_{3|2}z + z \geq 0 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1 \text{ and } z > 0$

or

$-\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 + \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_2 + \underline{\pi}_{3|2}\overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}\overline{\pi}_2 + \overline{\pi}_2\overline{\pi}_{3|1} \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\overline{\pi}_2\overline{\pi}_{3|2} + \underline{\pi}_1\overline{\pi}_{3|2}z - \underline{\pi}_{3|2}\overline{\pi}_2 + \overline{\pi}_2\overline{\pi}_{3|2} \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_1 z - \underline{\pi}_1 - \underline{\pi}_{3|2}\overline{\pi}_2 + \overline{\pi}_2 \leq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\overline{\pi}_2 + \underline{\pi}_1 z - \underline{\pi}_{3|2}\overline{\pi}_2 + \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}\overline{\pi}_2 + \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\overline{\pi}_2 - \underline{\pi}_{3|2}\overline{\pi}_2 + \overline{\pi}_2 \leq 0 \text{ and } -\underline{\pi}_1 + \overline{\pi}_1 \geq 0 \text{ and } -\underline{\pi}_1\overline{\pi}_2 + \underline{\pi}_1 z + \overline{\pi}_2 > 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } -\underline{\pi}_2 + \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_2\underline{\pi}_{3|1} + \underline{\pi}_2\underline{\pi}_{3|2} \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_2\overline{\pi}_{3|1} \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_2\overline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_1\overline{\pi}_{3|2}z - \underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_2\overline{\pi}_{3|2} \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_1 z - \underline{\pi}_1 - \underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_2 \leq 0 \text{ and } \underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_1 z - \underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_2 \leq 0 \text{ and } -\underline{\pi}_1\underline{\pi}_2 + \underline{\pi}_1 z + \underline{\pi}_2 > 0 \text{ and } -\underline{\pi}_1 + \overline{\pi}_1 \geq 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } -\underline{\pi}_2 + \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z - \underline{\pi}_{3|2}z + z \geq 0 \text{ and } -\underline{\pi}_1\underline{\pi}_{3|2}^2 z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|2}\overline{\pi}_{3|2}z - \underline{\pi}_{3|2}z + \overline{\pi}_{3|2}z \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}z + z > 0 \text{ and } -\underline{\pi}_1\underline{\pi}_{3|2}^2 z + \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2 z - 2\underline{\pi}_{3|2}z + z \geq 0 \text{ and } \underline{\pi}_1^2\underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2 + 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|2}^2 z - \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_2 \leq 0 \text{ and } \underline{\pi}_1^2\underline{\pi}_{3|2}^2\overline{\pi}_2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2 + \underline{\pi}_1\underline{\pi}_{3|2}^2 z + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2\overline{\pi}_2 - 2\underline{\pi}_{3|2}\overline{\pi}_2 + \overline{\pi}_2 \geq 0 \text{ and } -\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}z - \overline{\pi}_{3|1}z + z \leq 0 \text{ and } -\underline{\pi}_1^2\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1 z - \underline{\pi}_{3|2}\overline{\pi}_1 z + \overline{\pi}_1 z \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}z + z > 0 \text{ and } -\underline{\pi}_1^2\underline{\pi}_{3|2}z + 2\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1 z - \underline{\pi}_{3|2}z + z \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}z + z \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|2} + 1 <> 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1 \text{ and } z \leq 1$

or

$\underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 - \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z + \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2}^2 z + 2\underline{\pi}_1\underline{\pi}_{3|2}^2 + \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|2} + \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1}z - \underline{\pi}_{3|1} - \underline{\pi}_{3|2}^2 + \underline{\pi}_{3|2} \geq 0 \text{ and } \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 - \underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|2}^2 z + 2\underline{\pi}_1\underline{\pi}_{3|2}^2 + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|2} + \underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}^2 - 2\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|2} + \overline{\pi}_{3|1}z - \overline{\pi}_{3|1} \leq 0 \text{ and } \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - \underline{\pi}_1^2\underline{\pi}_{3|2}z + \underline{\pi}_1^2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_1 z - \underline{\pi}_1\underline{\pi}_{3|2}^2 z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1 + 2\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_1 z + \underline{\pi}_1 + \underline{\pi}_{3|2}^2\overline{\pi}_1 z - 2\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|2}\overline{\pi}_1 + \overline{\pi}_1 z - \overline{\pi}_1 \leq 0 \text{ and } -\underline{\pi}_1\underline{\pi}_{3|2}^2 z + \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|2} + \underline{\pi}_{3|2}^2 z - 2\underline{\pi}_{3|2}z + \underline{\pi}_{3|2} + z - 1 < 0 \text{ and } \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - \underline{\pi}_1^2\underline{\pi}_{3|2}z + \underline{\pi}_1^2\underline{\pi}_{3|2} - 2\underline{\pi}_1\underline{\pi}_{3|2}^2 z + 3\underline{\pi}_1\underline{\pi}_{3|2}z - 2\underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_1 z + \underline{\pi}_1 + \underline{\pi}_{3|2}^2 z - 2\underline{\pi}_{3|2}z + \underline{\pi}_{3|2} + z - 1 \leq 0 \text{ and } 2\underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 - \underline{\pi}_1^2\underline{\pi}_{3|2}z + \underline{\pi}_1^2\underline{\pi}_{3|2} - 3\underline{\pi}_1\underline{\pi}_{3|2}^2 z + 2\underline{\pi}_1\underline{\pi}_{3|2}^2 + 4\underline{\pi}_1\underline{\pi}_{3|2}z - 3\underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_1 z + \underline{\pi}_1 + \underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|2}^2 - 2\underline{\pi}_{3|2}z + 2\underline{\pi}_{3|2} + z - 1 \geq 0 \text{ and } -\underline{\pi}_1^2\underline{\pi}_{3|2}^2 z + \underline{\pi}_1^2\underline{\pi}_{3|2}^2 + \underline{\pi}_1^2\underline{\pi}_{3|2}\overline{\pi}_{3|2}z - \underline{\pi}_1^2\underline{\pi}_{3|2}\overline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_{3|2}^2 - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|2}z + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2} + \underline{\pi}_1\overline{\pi}_{3|2}z - \underline{\pi}_1\overline{\pi}_{3|2} + \underline{\pi}_{3|2}^2 - \underline{\pi}_{3|2}\overline{\pi}_{3|2} - \underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0 \text{ and } \underline{\pi}_1^2\underline{\pi}_{3|2}z - \underline{\pi}_1^2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2}z + 2\underline{\pi}_1\underline{\pi}_{3|2} + \underline{\pi}_1 z - \underline{\pi}_1\underline{\pi}_{3|2} < 1 \text{ and } \underline{\pi}_1^2\underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z + \underline{\pi}_1^2\underline{\pi}_{3|2}z - \underline{\pi}_1^2\underline{\pi}_{3|2} - 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2 + 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2} + \underline{\pi}_1 z - \underline{\pi}_1 + \underline{\pi}_2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_2 \leq 0 \text{ and } \underline{\pi}_1^2\underline{\pi}_{3|2}^2\overline{\pi}_2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z + \underline{\pi}_1^2\underline{\pi}_{3|2}z - \underline{\pi}_1^2\underline{\pi}_{3|2} - 2\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2 + \underline{\pi}_1\underline{\pi}_{3|2}^2 z + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - 2\underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2} + \underline{\pi}_1 z - \underline{\pi}_1 + \underline{\pi}_{3|2}^2\overline{\pi}_2 - 2\underline{\pi}_{3|2}\overline{\pi}_2 + \overline{\pi}_2 \geq 0 \text{ and } -\underline{\pi}_1^2\underline{\pi}_{3|2}^2 z + \underline{\pi}_1^2\underline{\pi}_{3|2}^2 + \underline{\pi}_1^2\underline{\pi}_{3|2}z - \underline{\pi}_1^2\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_{3|2}^2 - 2\underline{\pi}_1\underline{\pi}_{3|2}z + 3\underline{\pi}_1\underline{\pi}_{3|2} + \underline{\pi}_1 z - \underline{\pi}_1 + \underline{\pi}_{3|2}^2 - 2\underline{\pi}_{3|2} + 1 \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|2} + 1 <> 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1 \text{ and } z \leq 1$

or

$-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0 \text{ and } -\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0 \text{ and } \underline{\pi}_1 z - \underline{\pi}_1 - \underline{\pi}_1 z + \overline{\pi}_{3|1} \geq 0 \text{ and } -\underline{\pi}_1 + \overline{\pi}_1 \geq 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } -\overline{\pi}_2 + 1 \leq 0 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1 \text{ and } z \leq 1 \text{ and } z \geq 0$

or

$-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0 \text{ and } -\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1} + \overline{\pi}_2\overline{\pi}_{3|1} \geq 0 \text{ and } \underline{\pi}_1 z - \underline{\pi}_1 - \overline{\pi}_2\overline{\pi}_{3|1} + \overline{\pi}_2 \geq 0 \text{ and } -\underline{\pi}_1\overline{\pi}_2 - \underline{\pi}_1 z + \underline{\pi}_1 + \overline{\pi}_2\overline{\pi}_{3|1} \geq 0 \text{ and } -\underline{\pi}_1 + \overline{\pi}_1 \geq 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } -\underline{\pi}_2 + \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_2 + z - 1 \geq 0 \text{ and } -\overline{\pi}_2 + 1 \geq 0 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1 \text{ and } z \leq 1$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \ge 0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_1\underline{\pi}_{3|2}-\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1}+\underline{\pi}_2\overline{\pi}_{3|1} \ge 0$ and $\underline{\pi}_1 z-\underline{\pi}_1-\underline{\pi}_2\overline{\pi}_{3|1}+\underline{\pi}_2 \ge 0$ and $-\underline{\pi}_1\underline{\pi}_2-\underline{\pi}_1 z+\underline{\pi}_1+\underline{\pi}_2\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \ge 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2+z-1 \ge 0$ and $-\underline{\pi}_2+\overline{\pi}_2 \ge 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \le 1$

or

$-\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z+\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}+\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_{3|2}\overline{\pi}_{3|1}^2z-\underline{\pi}_{3|2}\overline{\pi}_{3|1}z-\underline{\pi}_{3|2}\overline{\pi}_{3|1}+\underline{\pi}_{3|2}-\overline{\pi}_{3|1}^2z+\overline{\pi}_{3|1}^2+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1} \le 0$ and $\underline{\pi}_1\overline{\pi}_{3|1}z-\underline{\pi}_1\overline{\pi}_{3|1}-\underline{\pi}_1 z+\underline{\pi}_1-\overline{\pi}_1\overline{\pi}_{3|1}z+\overline{\pi}_1\overline{\pi}_{3|1}+\overline{\pi}_1 z-\overline{\pi}_1 \le 0$ and $\underline{\pi}_1\overline{\pi}_{3|1}z-\underline{\pi}_1\overline{\pi}_{3|1}-\underline{\pi}_1 z+\underline{\pi}_1-\overline{\pi}_{3|1}z+\overline{\pi}_{3|1}+z-1 \le 0$ and $\underline{\pi}_1\overline{\pi}_{3|1}z-\underline{\pi}_1\overline{\pi}_{3|1}-\underline{\pi}_1 z+\underline{\pi}_1+\overline{\pi}_{3|1}^2z-\overline{\pi}_{3|1}^2-2\overline{\pi}_{3|1}z+2\overline{\pi}_{3|1}+z-1 \ge 0$ and $-\underline{\pi}_1\overline{\pi}_{3|1}z+\underline{\pi}_1\overline{\pi}_{3|1}+\underline{\pi}_1 z-\underline{\pi}_1+\underline{\pi}_2\overline{\pi}_{3|1}^2-2\underline{\pi}_2\overline{\pi}_{3|1}+\underline{\pi}_2 \le 0$ and $-\underline{\pi}_1\overline{\pi}_{3|1}z+\underline{\pi}_1\overline{\pi}_{3|1}+\underline{\pi}_1 z-\underline{\pi}_1+\overline{\pi}_2\overline{\pi}_{3|1}^2-2\overline{\pi}_2\overline{\pi}_{3|1}+\overline{\pi}_2 \ge 0$ and $-\underline{\pi}_1\overline{\pi}_{3|1}z+\underline{\pi}_1\overline{\pi}_{3|1}+\underline{\pi}_1 z-\underline{\pi}_1+\overline{\pi}_{3|1}^2-2\overline{\pi}_{3|1}+1 \ge 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1}\overline{\pi}_{3|1}z-\underline{\pi}_{3|1}\overline{\pi}_{3|1}-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}-\overline{\pi}_{3|1}^2z+\overline{\pi}_{3|1}^2+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1} \le 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2}\overline{\pi}_{3|1}z-\underline{\pi}_{3|2}\overline{\pi}_{3|1}-\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}-\overline{\pi}_{3|1}\overline{\pi}_{3|2}z+\overline{\pi}_{3|1}\overline{\pi}_{3|2}+\overline{\pi}_{3|2}z-\overline{\pi}_{3|2} \le 0$ and $-\overline{\pi}_{3|1}z+\overline{\pi}_{3|1}+z-1 < 0$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $-\overline{\pi}_{3|1}z+\overline{\pi}_{3|1}+z-1 < 0$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \le 1$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \ge 0$ and $-\underline{\pi}_1\overline{\pi}_2+\underline{\pi}_1 z-\overline{\pi}_2\overline{\pi}_{3|1}+\overline{\pi}_2 \ge 0$ and $-\underline{\pi}_1 z+\overline{\pi}_2\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \ge 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2+\overline{\pi}_2 \ge 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $-\overline{\pi}_2+z \le 0$ and $-\overline{\pi}_2+1 \ge 0$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \ge 0$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \ge 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1}+\overline{\pi}_2\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1+\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \ge 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2+\overline{\pi}_2 \ge 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $-\overline{\pi}_2+z \ge 0$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \le 1$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \ge 0$ and $-\underline{\pi}_1\underline{\pi}_2+\underline{\pi}_1 z-\underline{\pi}_2\overline{\pi}_{3|1}+\underline{\pi}_2 \ge 0$ and $-\underline{\pi}_1 z+\underline{\pi}_2\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \ge 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2+z \le 0$ and $-\underline{\pi}_2+\overline{\pi}_2 \ge 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \ge 0$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \ge 0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1}+\underline{\pi}_2\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1+\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \ge 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2+z \ge 0$ and $-\underline{\pi}_2+\overline{\pi}_2 \ge 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \le 1$

or

$-\underline{\pi}_1 z+\overline{\pi}_1 z \ge 0$ and $-\underline{\pi}_1 z+z \ge 0$ and $-\underline{\pi}_1 z+\overline{\pi}_{3|1}z \le 0$ and $-\underline{\pi}_1 z+\underline{\pi}_2\overline{\pi}_{3|1} \le 0$ and $-\underline{\pi}_1 z+\overline{\pi}_2\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1 z+\overline{\pi}_{3|1} \ge 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $-\underline{\pi}_{3|1}z+\overline{\pi}_{3|1}z \ge 0$ and $\underline{\pi}_{3|1} < 1$ and $-\underline{\pi}_{3|2}z+\overline{\pi}_{3|2}z \ge 0$ and $-\underline{\pi}_{3|2}z+z \ge 0$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $z > 0$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \ge 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z+\overline{\pi}_2\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1\overline{\pi}_2-\underline{\pi}_1 z+\underline{\pi}_1+\overline{\pi}_2\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1 z+\overline{\pi}_2\overline{\pi}_{3|1} \le 0$ and $-\underline{\pi}_1+\overline{\pi}_{3|1} \le 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \ge 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2+\overline{\pi}_2 \ge 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \ge 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_2\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1\underline{\pi}_2-\underline{\pi}_1 z+\underline{\pi}_1+\underline{\pi}_2\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1 z+\underline{\pi}_2\overline{\pi}_{3|1} \le 0$ and $-\underline{\pi}_1+\overline{\pi}_{3|1} \le 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \ge 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2+\overline{\pi}_2 \ge 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}z-\underline{\pi}_1\underline{\pi}_{3|1}-\underline{\pi}_1\overline{\pi}_{3|1}z+\underline{\pi}_1\overline{\pi}_{3|1}-\underline{\pi}_{3|1}\overline{\pi}_{3|1}z+\underline{\pi}_{3|1}\overline{\pi}_{3|1}+\overline{\pi}_{3|1}^2z-\overline{\pi}_{3|1}^2 \ge 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_1\underline{\pi}_{3|2}-\underline{\pi}_1\overline{\pi}_{3|2}z+\underline{\pi}_1\overline{\pi}_{3|2}-\underline{\pi}_{3|2}\overline{\pi}_{3|1}z+\underline{\pi}_{3|2}\overline{\pi}_{3|1}+\overline{\pi}_{3|1}\overline{\pi}_{3|2}z-\overline{\pi}_{3|1}\overline{\pi}_{3|2} \ge 0$ and $-\underline{\pi}_1 z+\underline{\pi}_1+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1} > 0$ and $-\underline{\pi}_1^2\underline{\pi}_{3|2}z+2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z-\underline{\pi}_1\overline{\pi}_{3|1}z+\underline{\pi}_1\overline{\pi}_{3|1}-\underline{\pi}_{3|2}\overline{\pi}_{3|1}^2z+\overline{\pi}_{3|1}^2z-\overline{\pi}_{3|1}^2 \ge 0$ and $\underline{\pi}_1^2z-\underline{\pi}_1^2-\underline{\pi}_1\overline{\pi}_1 z+\underline{\pi}_1\overline{\pi}_1-\underline{\pi}_1\overline{\pi}_{3|1}z+\underline{\pi}_1\overline{\pi}_{3|1}+\overline{\pi}_1\overline{\pi}_{3|1}z-\overline{\pi}_1\overline{\pi}_{3|1} \ge 0$ and $\underline{\pi}_1^2z-\underline{\pi}_1^2-\underline{\pi}_1\overline{\pi}_{3|1}z+\underline{\pi}_1\overline{\pi}_{3|1}-\underline{\pi}_1 z+\underline{\pi}_1+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1} \ge 0$ and $-\underline{\pi}_1 z+\underline{\pi}_1+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1} > 0$ and $-\underline{\pi}_1 z+\underline{\pi}_1+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1} \ge 0$ and $\underline{\pi}_1^2\underline{\pi}_2+\underline{\pi}_1^2z-\underline{\pi}_1^2-2\underline{\pi}_1\underline{\pi}_2\overline{\pi}_{3|1}-\underline{\pi}_1\overline{\pi}_{3|1}z+\underline{\pi}_1\overline{\pi}_{3|1}+\underline{\pi}_2\overline{\pi}_{3|1}^2 \le 0$ and $\underline{\pi}_1^2\overline{\pi}_2+$

$$\underline{\pi}_1^2 z - \underline{\pi}_1^2 - 2\underline{\pi}_1\overline{\pi}_2\overline{\pi}_{3|1} - \underline{\pi}_1\overline{\pi}_{3|1}z + \underline{\pi}_1\overline{\pi}_{3|1} + \overline{\pi}_2\overline{\pi}_{3|1}^2 \geq 0 \text{ and } \underline{\pi}_1^2 z - \underline{\pi}_1\overline{\pi}_{3|1}z - \underline{\pi}_1\overline{\pi}_{3|1} + \overline{\pi}_{3|1}^2 \geq 0 \text{ and } -\underline{\pi}_1 + \overline{\pi}_{3|1} <> 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1 \text{ and } z \leq 1$$

or

$$\underline{\pi}_1\underline{\pi}_{3|1}z - \underline{\pi}_1\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}\overline{\pi}_{3|1}z - \underline{\pi}_{3|1}z - \overline{\pi}_{3|1}^2 z + \overline{\pi}_{3|1}z \leq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\overline{\pi}_{3|2}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}z - \overline{\pi}_{3|1}\overline{\pi}_{3|2}z + \overline{\pi}_{3|2}z \leq 0 \text{ and } -\underline{\pi}_1 z - \overline{\pi}_{3|1}z + z < 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1 z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}z - \overline{\pi}_{3|1}z + z \leq 0 \text{ and } \underline{\pi}_1^2 z - \underline{\pi}_1\overline{\pi}_1 z + \underline{\pi}_1\overline{\pi}_{3|1}z - \underline{\pi}_1 z - \overline{\pi}_1\overline{\pi}_{3|1}z + \overline{\pi}_1 z \leq 0 \text{ and } -\underline{\pi}_1 z - \overline{\pi}_{3|1}z + z < 0 \text{ and } \underline{\pi}_1^2 z + \underline{\pi}_1\overline{\pi}_{3|1}z - 2\underline{\pi}_1 z - \overline{\pi}_{3|1}z + z \leq 0 \text{ and } \underline{\pi}_1\overline{\pi}_{3|1}z - \underline{\pi}_1 z + \overline{\pi}_{3|1}^2 z - 2\overline{\pi}_{3|1}z + z \leq 0 \text{ and } \underline{\pi}_1^2\underline{\pi}_2 - \underline{\pi}_1^2 z + 2\underline{\pi}_1\underline{\pi}_2\overline{\pi}_{3|1} - 2\underline{\pi}_1\underline{\pi}_2 - \underline{\pi}_1\overline{\pi}_{3|1}z + \underline{\pi}_1 z + \underline{\pi}_2\overline{\pi}_{3|1}^2 - 2\underline{\pi}_2\overline{\pi}_{3|1} + \underline{\pi}_2 \leq 0 \text{ and } \underline{\pi}_1^2\overline{\pi}_2 - \underline{\pi}_1^2 z + 2\underline{\pi}_1\overline{\pi}_2\overline{\pi}_{3|1} - 2\underline{\pi}_1\overline{\pi}_2 - \underline{\pi}_1\overline{\pi}_{3|1}z + \underline{\pi}_1 z + \overline{\pi}_2\overline{\pi}_{3|1}^2 - 2\overline{\pi}_2\overline{\pi}_{3|1} + \overline{\pi}_2 \geq 0 \text{ and } -\underline{\pi}_1^2 z + \underline{\pi}_1^2 - \underline{\pi}_1\overline{\pi}_{3|1}z + 2\underline{\pi}_1\overline{\pi}_{3|1} + \underline{\pi}_1 z - 2\underline{\pi}_1 + \overline{\pi}_{3|1}^2 - 2\overline{\pi}_{3|1} + 1 \geq 0 \text{ and } -\underline{\pi}_1 - \overline{\pi}_{3|1} + 1 <> 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1 \text{ and } z \geq 0$$

or

$$-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}\overline{\pi}_2 + \overline{\pi}_2\overline{\pi}_{3|1} \geq 0 \text{ and } -\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0 \text{ and } \underline{\pi}_1 z - \underline{\pi}_1 - \overline{\pi}_2\overline{\pi}_{3|1} + \overline{\pi}_2 \leq 0 \text{ and } -\underline{\pi}_1\overline{\pi}_2 + \underline{\pi}_1 z - \overline{\pi}_2\overline{\pi}_{3|1} + \overline{\pi}_2 \geq 0 \text{ and } -\underline{\pi}_1 - \overline{\pi}_{3|1} + 1 \leq 0 \text{ and } -\underline{\pi}_1 + \overline{\pi}_1 \geq 0 \text{ and } -\underline{\pi}_1 - \overline{\pi}_{3|1} + 1 <> 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } -\underline{\pi}_2 + \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1$$

or

$$-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_2\overline{\pi}_{3|1} \geq 0 \text{ and } -\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0 \text{ and } \underline{\pi}_1 z - \underline{\pi}_1 - \underline{\pi}_2\overline{\pi}_{3|1} + \underline{\pi}_2 \leq 0 \text{ and } -\underline{\pi}_1\underline{\pi}_2 + \underline{\pi}_1 z - \underline{\pi}_2\overline{\pi}_{3|1} + \underline{\pi}_2 \geq 0 \text{ and } -\underline{\pi}_1 - \overline{\pi}_{3|1} + 1 \leq 0 \text{ and } -\underline{\pi}_1 + \overline{\pi}_1 \geq 0 \text{ and } -\underline{\pi}_1 - \overline{\pi}_{3|1} + 1 <> 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } -\underline{\pi}_2 + \overline{\pi}_2 \geq 0 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1$$

or

$$-\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|2} + \underline{\pi}_{3|2}\overline{\pi}_{3|1}^2 z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|2} - \overline{\pi}_{3|1}^2 z + \overline{\pi}_{3|1}^2 + \overline{\pi}_{3|1}z - \overline{\pi}_{3|1} \leq 0 \text{ and } \underline{\pi}_1\overline{\pi}_{3|1}z - \underline{\pi}_1\overline{\pi}_{3|1} - \underline{\pi}_1 z + \underline{\pi}_1 - \overline{\pi}_1\overline{\pi}_{3|1}z + \overline{\pi}_1\overline{\pi}_{3|1} + \overline{\pi}_1 z - \overline{\pi}_1 \leq 0 \text{ and } \underline{\pi}_1\overline{\pi}_{3|1}z - \underline{\pi}_1\overline{\pi}_{3|1} - \underline{\pi}_1 z + \underline{\pi}_1 - \overline{\pi}_{3|1}z + \overline{\pi}_{3|1} + z - 1 \leq 0 \text{ and } \underline{\pi}_1\overline{\pi}_{3|1}z - \underline{\pi}_1\overline{\pi}_{3|1} - \underline{\pi}_1 z + \underline{\pi}_1 + \overline{\pi}_{3|1}^2 z - \overline{\pi}_{3|1}^2 - 2\overline{\pi}_{3|1}z + 2\overline{\pi}_{3|1} + z - 1 \geq 0 \text{ and } -\underline{\pi}_1\overline{\pi}_{3|1}z + \underline{\pi}_1\overline{\pi}_{3|1} + \underline{\pi}_1 z - \underline{\pi}_1 + \underline{\pi}_2\overline{\pi}_{3|1}^2 - 2\underline{\pi}_2\overline{\pi}_{3|1} + \underline{\pi}_2 \leq 0 \text{ and } -\underline{\pi}_1\overline{\pi}_{3|1}z + \underline{\pi}_1\overline{\pi}_{3|1} + \underline{\pi}_1 z - \underline{\pi}_1 + \overline{\pi}_2\overline{\pi}_{3|1}^2 - 2\overline{\pi}_2\overline{\pi}_{3|1} + \overline{\pi}_2 \geq 0 \text{ and } -\underline{\pi}_1\overline{\pi}_{3|1}z + \underline{\pi}_1\overline{\pi}_{3|1} + \underline{\pi}_1 z - \underline{\pi}_1 + \overline{\pi}_{3|1}^2 - 2\overline{\pi}_{3|1} + 1 \geq 0 \text{ and } -\underline{\pi}_1 - \overline{\pi}_{3|1} + 1 <> 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1}\overline{\pi}_{3|1}z - \underline{\pi}_{3|1}\overline{\pi}_{3|1} - \underline{\pi}_{3|1}z + \underline{\pi}_{3|1} - \overline{\pi}_{3|1}^2 z + \overline{\pi}_{3|1}^2 + \overline{\pi}_{3|1}z - \overline{\pi}_{3|1} \leq 0 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_{3|1} - \underline{\pi}_{3|2}z + \underline{\pi}_{3|2} - \overline{\pi}_{3|1}\overline{\pi}_{3|2}z + \overline{\pi}_{3|1}\overline{\pi}_{3|2} + \overline{\pi}_{3|2}z - \overline{\pi}_{3|2} \leq 0 \text{ and } -\overline{\pi}_{3|1}z + \overline{\pi}_{3|1} + z - 1 < 0 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } -\overline{\pi}_{3|1}z + \overline{\pi}_{3|1} + z - 1 < 0 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1 \text{ and } z \leq 1$$

or

$$-\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \overline{\pi}_{3|1}^2 z \geq 0 \text{ and } \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 - \underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|2}^2 z + 2\underline{\pi}_1\underline{\pi}_{3|2}^2 + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z - 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}^2 - \underline{\pi}_{3|2}\overline{\pi}_{3|1}^2 z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z + 2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \overline{\pi}_{3|1}^2 z - \overline{\pi}_{3|1}^2 \leq 0 \text{ and } -\underline{\pi}_1\underline{\pi}_{3|2}^2 z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_{3|2}z + \overline{\pi}_{3|1}\overline{\pi}_{3|2}z \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}z + \overline{\pi}_{3|1}z > 0 \text{ and } -\underline{\pi}_1\underline{\pi}_{3|2}^2 z + \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}z + \overline{\pi}_{3|1}z \geq 0 \text{ and } \underline{\pi}_1^2\underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2 + 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_1\underline{\pi}_{3|2}^2 z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_2\overline{\pi}_{3|1}^2 \leq 0 \text{ and } \underline{\pi}_1^2\underline{\pi}_{3|2}^2\overline{\pi}_2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2 + \underline{\pi}_1\underline{\pi}_{3|2}^2 z + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1} - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_{3|2}^2\overline{\pi}_2 - 2\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1} + \overline{\pi}_2\overline{\pi}_{3|1}^2 \geq 0 \text{ and } -\underline{\pi}_1^2\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_1 z + \overline{\pi}_1\overline{\pi}_{3|1}z \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}z + \overline{\pi}_{3|1}z > 0 \text{ and } -\underline{\pi}_1^2\underline{\pi}_{3|2}z + 2\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}z + \overline{\pi}_{3|1}z \geq 0 \text{ and } -\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}z - \overline{\pi}_{3|1}^2 z + \overline{\pi}_{3|1}z \geq 0 \text{ and } -\underline{\pi}_1^2\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + 2\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\overline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}z - \overline{\pi}_{3|1}^2 z + \overline{\pi}_{3|1}z \leq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|2} + \overline{\pi}_{3|1} <> 0 \text{ and } -\underline{\pi}_1 - \overline{\pi}_{3|1} + 1 <> 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } \underline{\pi}_2 < 1 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1$$

or

$$\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \overline{\pi}_{3|1}z - \overline{\pi}_{3|1} \leq 0 \text{ and } -\underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_2\overline{\pi}_{3|1} \leq 0 \text{ and } -\underline{\pi}_1\underline{\pi}_{3|2}z + \overline{\pi}_2\overline{\pi}_{3|1} \geq 0 \text{ and } -\underline{\pi}_1 z + \overline{\pi}_1 z \geq 0 \text{ and } -\underline{\pi}_1 z + z \geq 0 \text{ and } -\underline{\pi}_1 z + \overline{\pi}_{3|1}z \leq 0 \text{ and } \underline{\pi}_1 < 1 \text{ and } \underline{\pi}_2 < 1 \text{ and } -\underline{\pi}_{3|1}z + \overline{\pi}_{3|1}z \geq 0 \text{ and } \underline{\pi}_{3|1} < 1 \text{ and } -\underline{\pi}_{3|2}z + \overline{\pi}_{3|2}z \geq 0 \text{ and } -\underline{\pi}_{3|2}z + z \geq 0 \text{ and } \underline{\pi}_{3|2} < 1 \text{ and } \overline{\pi}_1 < 1 \text{ and } \overline{\pi}_{3|1} < 1 \text{ and } \overline{\pi}_{3|2} < 1 \text{ and } z > 0$$

or

$$-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}\overline{\pi}_2 + \overline{\pi}_2\overline{\pi}_{3|1} \leq 0 \text{ and } -\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0 \text{ and } -\underline{\pi}_1\underline{\pi}_{3|2}z + \overline{\pi}_2\overline{\pi}_{3|1} \geq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1} + \overline{\pi}_2\overline{\pi}_{3|1} \geq 0 \text{ and } -\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1} + \overline{\pi}_2\overline{\pi}_{3|1} \leq 0 \text{ and } \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 -$$

$\underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1} + \overline{\pi}_2\overline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_2\overline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_2\overline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_2\overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_2\overline{\pi}_{3|1} \leq 0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_2\overline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}^2z + \overline{\pi}_{3|1}^2z \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}\overline{\pi}_{3|2}z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \overline{\pi}_{3|1}\overline{\pi}_{3|2}z \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \overline{\pi}_{3|1}z > 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2z + \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z - 2\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \overline{\pi}_{3|1}z \geq 0$ and $\underline{\pi}_1^2\underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2z - 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_{3|1} + 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_{3|1}^2 - 2\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1}^2 + \underline{\pi}_2\overline{\pi}_{3|1}^2 \leq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}^2\overline{\pi}_2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2z - 2\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2\overline{\pi}_{3|1} + \underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1} - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_{3|2}^2\overline{\pi}_2\overline{\pi}_{3|1}^2 - 2\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1}^2 + \overline{\pi}_2\overline{\pi}_{3|1}^2 \geq 0$ and $-\underline{\pi}_1^2\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_1\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_{3|1}z + \overline{\pi}_1\overline{\pi}_{3|1}z \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \overline{\pi}_{3|1}z > 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}^2z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \overline{\pi}_{3|1}^2z + \overline{\pi}_{3|1}z \geq 0$ and $-\underline{\pi}_1^2\underline{\pi}_{3|2}z + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_1\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}^2z + \overline{\pi}_{3|1}^2z \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \overline{\pi}_{3|1}z \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|2}\overline{\pi}_{3|1} + \overline{\pi}_{3|1} <> 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$-\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \overline{\pi}_{3|1}^2z \geq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}^2z - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 - \underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|2}^2z + 2\underline{\pi}_1\underline{\pi}_{3|2}^2 + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z - 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}^2 - \underline{\pi}_{3|2}\overline{\pi}_{3|1}^2z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z + 2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \overline{\pi}_{3|1}^2z - \overline{\pi}_{3|1}^2 \leq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_{3|2}z + \overline{\pi}_{3|1}\overline{\pi}_{3|2}z \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}z + \overline{\pi}_{3|1}z > 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2z + \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|2}^2z - \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}z + \overline{\pi}_{3|1}z \geq 0$ and $\underline{\pi}_1^2\underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2z - 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2 + 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_1\underline{\pi}_{3|2}^2z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_2\overline{\pi}_{3|1}^2 \leq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}^2\overline{\pi}_2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2z - 2\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2 + \underline{\pi}_1\underline{\pi}_{3|2}^2z + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1} - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_{3|2}^2\overline{\pi}_2 - 2\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1} + \overline{\pi}_2\overline{\pi}_{3|1}^2 \geq 0$ and $-\underline{\pi}_1^2\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1z + \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}\overline{\pi}_1z + \overline{\pi}_1\overline{\pi}_{3|1}z \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|2}z + \overline{\pi}_{3|1}z > 0$ and $-\underline{\pi}_1^2\underline{\pi}_{3|2}z + 2\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}z + \overline{\pi}_{3|1}z \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}z - \overline{\pi}_{3|1}^2z + \overline{\pi}_{3|1}z \geq 0$ and $-\underline{\pi}_1^2\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + 2\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_1\overline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_{3|2}z - \overline{\pi}_{3|1}^2z + \overline{\pi}_{3|1}z \leq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|2} + \overline{\pi}_{3|1} <> 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_{3|1} - \underline{\pi}_{3|1}\overline{\pi}_{3|1} - \underline{\pi}_{3|2}\overline{\pi}_{3|1}^2 + \overline{\pi}_{3|1}^2 \geq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}^2z - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z + \underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_{3|1} + \underline{\pi}_1\underline{\pi}_{3|2}^2 + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z - 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|2}^2\overline{\pi}_{3|1}^2z - \underline{\pi}_{3|2}^2\overline{\pi}_{3|1} - 2\underline{\pi}_{3|2}\overline{\pi}_{3|1}^2z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}^2 + \underline{\pi}_{3|2}\overline{\pi}_{3|1} + \overline{\pi}_{3|1}^2z - \overline{\pi}_{3|1}^2 \geq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}^2z - 2\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|2}^2\overline{\pi}_{3|1}^2z - 2\underline{\pi}_{3|2}\overline{\pi}_{3|1}^2z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}^2 + \overline{\pi}_{3|1}^2z - \overline{\pi}_{3|1}^2 \leq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}^2z - 2\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_{3|1}z + \underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_{3|1} + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|2}^2\overline{\pi}_{3|1}^2z - \underline{\pi}_{3|2}^2\overline{\pi}_{3|1}^2 - 2\underline{\pi}_{3|2}\overline{\pi}_{3|1}^2z + 2\underline{\pi}_{3|2}\overline{\pi}_{3|1}^2 + \overline{\pi}_{3|1}^2z - \overline{\pi}_{3|1}^2 \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2 + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|2} + \underline{\pi}_{3|2}^2\overline{\pi}_{3|1} - \underline{\pi}_{3|2}\overline{\pi}_{3|1}\overline{\pi}_{3|2} - \underline{\pi}_{3|2}\overline{\pi}_{3|1} + \overline{\pi}_{3|1}\overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|2}\overline{\pi}_{3|1} + \overline{\pi}_{3|1} > 0$ and $\underline{\pi}_1^2\underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_{3|1} + 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_{3|1} - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_2\underline{\pi}_{3|2}^2\overline{\pi}_{3|1}^2 - 2\underline{\pi}_2\underline{\pi}_{3|2}\overline{\pi}_{3|1}^2 + \underline{\pi}_2\overline{\pi}_{3|1}^2 \leq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}^2\overline{\pi}_2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2\overline{\pi}_{3|1} + \underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_{3|1} + 2\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1} - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|2}^2\overline{\pi}_2\overline{\pi}_{3|1}^2 - 2\underline{\pi}_{3|2}\overline{\pi}_2\overline{\pi}_{3|1}^2 + \overline{\pi}_2\overline{\pi}_{3|1}^2 \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2 + \underline{\pi}_1\underline{\pi}_{3|2} + \underline{\pi}_{3|2}^2\overline{\pi}_{3|1} - 2\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1^2\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1} - \underline{\pi}_1\overline{\pi}_{3|1} - \underline{\pi}_{3|2}\overline{\pi}_1\overline{\pi}_{3|1} + \overline{\pi}_1\overline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|2}\overline{\pi}_{3|1} + \overline{\pi}_{3|1} > 0$ and $\underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|2}\overline{\pi}_{3|1} + \overline{\pi}_{3|1} <> 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_1z - \underline{\pi}_1 - \underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0$ and $-\underline{\pi}_1z + \underline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $-\overline{\pi}_2 + 1 \leq 0$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$ and $z \geq 0$

or

$-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_1z - \underline{\pi}_1 - \underline{\pi}_{3|1}\overline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 + \underline{\pi}_{3|1}\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_1\overline{\pi}_2 - \underline{\pi}_1z + \underline{\pi}_1 + \underline{\pi}_{3|1}\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_2 + z - 1 \geq 0$ and $-\overline{\pi}_2 + 1 \geq 0$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_1 z-\underline{\pi}_1-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2 \geq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_1\underline{\pi}_{3|2}-\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_2\underline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1\underline{\pi}_2-\underline{\pi}_1 z+\underline{\pi}_1+\underline{\pi}_2\underline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2+z-1 \geq 0$ and $-\underline{\pi}_2+\overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}z-\underline{\pi}_1\underline{\pi}_{3|1}-\underline{\pi}_1 z+\underline{\pi}_1-\underline{\pi}_{3|1}\overline{\pi}_1 z+\underline{\pi}_{3|1}\overline{\pi}_1+\overline{\pi}_1 z-\overline{\pi}_1 \leq 0$ and $\underline{\pi}_1\underline{\pi}_{3|1}z-\underline{\pi}_1\underline{\pi}_{3|1}-\underline{\pi}_1 z+\underline{\pi}_1-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1 \leq 0$ and $\underline{\pi}_1\underline{\pi}_{3|1}z-\underline{\pi}_1\underline{\pi}_{3|1}-\underline{\pi}_1 z+\underline{\pi}_1+\underline{\pi}_{3|1}^2 z-\underline{\pi}_{3|1}^2-2\underline{\pi}_{3|1}z+2\underline{\pi}_{3|1}+z-1 \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_1\underline{\pi}_{3|2}+\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}^2 z+\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1}+\underline{\pi}_{3|2} \leq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|1}z+\underline{\pi}_1\underline{\pi}_{3|1}+\underline{\pi}_1 z-\underline{\pi}_1+\underline{\pi}_2\underline{\pi}_{3|1}^2-2\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2 \leq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|1}z+\underline{\pi}_1\underline{\pi}_{3|1}+\underline{\pi}_1 z-\underline{\pi}_1+\underline{\pi}_{3|1}^2\overline{\pi}_2-2\underline{\pi}_{3|1}\overline{\pi}_2+\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|1}z+\underline{\pi}_1\underline{\pi}_{3|1}+\underline{\pi}_1 z-\underline{\pi}_1+\underline{\pi}_{3|1}^2-2\underline{\pi}_{3|1}+1 \geq 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1}^2 z-\underline{\pi}_{3|1}^2-\underline{\pi}_{3|1}\overline{\pi}_{3|1}z+\underline{\pi}_{3|1}\overline{\pi}_{3|1}-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+\overline{\pi}_{3|1}z-\overline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1 < 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}-\underline{\pi}_{3|1}\overline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_{3|2}-\underline{\pi}_{3|2}z+\underline{\pi}_{3|2}+\overline{\pi}_{3|2}z-\overline{\pi}_{3|2} \leq 0$ and $-\underline{\pi}_{3|1}z+\underline{\pi}_{3|1}+z-1 < 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1\overline{\pi}_2+\underline{\pi}_1 z-\underline{\pi}_{3|1}\overline{\pi}_2+\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \geq 0$ and $-\underline{\pi}_1 z+\underline{\pi}_{3|1}\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2+\overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $-\overline{\pi}_2+z \leq 0$ and $-\overline{\pi}_2+1 \geq 0$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \geq 0$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2-\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2+\underline{\pi}_{3|1}\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_1+\underline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2+\overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $-\overline{\pi}_2+z \geq 0$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1\underline{\pi}_2+\underline{\pi}_1 z-\underline{\pi}_2\underline{\pi}_{3|1}+\underline{\pi}_2 \geq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \geq 0$ and $-\underline{\pi}_1 z+\underline{\pi}_2\underline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2+z \leq 0$ and $-\underline{\pi}_2+\overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \geq 0$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}-\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_2\underline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1+\underline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2+z \geq 0$ and $-\underline{\pi}_2+\overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$-\underline{\pi}_1 z+\overline{\pi}_1 z \geq 0$ and $-\underline{\pi}_1 z+z \geq 0$ and $-\underline{\pi}_1 z+\underline{\pi}_{3|1}z \leq 0$ and $-\underline{\pi}_1 z+\underline{\pi}_2\underline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_1 z+\underline{\pi}_{3|1}\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_1 z+\underline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $-\underline{\pi}_{3|1}z+\overline{\pi}_{3|1}z \geq 0$ and $\underline{\pi}_{3|1} < 1$ and $-\underline{\pi}_{3|2}z+\overline{\pi}_{3|2}z \geq 0$ and $z > 0$ and $-\underline{\pi}_{3|2}z+z \geq 0$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_1\overline{\pi}_2-\underline{\pi}_1 z+\underline{\pi}_1+\underline{\pi}_{3|1}\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_1 z+\underline{\pi}_{3|1}\overline{\pi}_2 \leq 0$ and $-\underline{\pi}_1+\underline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2+\overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_{3|1}+\overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_{3|2}+\overline{\pi}_{3|2} \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z+\underline{\pi}_2\underline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1\underline{\pi}_2-\underline{\pi}_1 z+\underline{\pi}_1+\underline{\pi}_2\underline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1 z+\underline{\pi}_2\underline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_1+\underline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_1+\overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2+\overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}z-\underline{\pi}_1\underline{\pi}_{3|1}-\underline{\pi}_1\overline{\pi}_{3|1}z+\underline{\pi}_1\overline{\pi}_{3|1}-\underline{\pi}_{3|1}^2 z+\underline{\pi}_{3|1}^2+\underline{\pi}_{3|1}\overline{\pi}_{3|1}z-\underline{\pi}_{3|1}\overline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_1^2 z-\underline{\pi}_1^2-\underline{\pi}_1\underline{\pi}_{3|1}z+\underline{\pi}_1\underline{\pi}_{3|1}-\underline{\pi}_1\overline{\pi}_1 z+\underline{\pi}_1\overline{\pi}_1+\underline{\pi}_{3|1}\overline{\pi}_1 z-\underline{\pi}_{3|1}\overline{\pi}_1 \geq 0$ and $\underline{\pi}_1^2 z-\underline{\pi}_1^2-\underline{\pi}_1\underline{\pi}_{3|1}z+\underline{\pi}_1\underline{\pi}_{3|1}-\underline{\pi}_1 z+\underline{\pi}_1+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1 z+\underline{\pi}_1+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1} > 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z-\underline{\pi}_1\underline{\pi}_{3|2}-\underline{\pi}_1\overline{\pi}_{3|2}z+\underline{\pi}_1\overline{\pi}_{3|2}-\underline{\pi}_{3|1}\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}\underline{\pi}_{3|2}+\underline{\pi}_{3|1}\overline{\pi}_{3|2}z-\underline{\pi}_{3|1}\overline{\pi}_{3|2} \geq 0$ and $-\underline{\pi}_1 z+\underline{\pi}_1+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1} > 0$ and $-\underline{\pi}_1^2\underline{\pi}_{3|2}z+2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z-\underline{\pi}_1\underline{\pi}_{3|1}z+\underline{\pi}_1\underline{\pi}_{3|1}-\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z+\underline{\pi}_{3|1}^2 z-\underline{\pi}_{3|1}^2 \geq 0$ and $-\underline{\pi}_1 z+\underline{\pi}_1+\underline{\pi}_{3|1}z-\underline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_1^2\underline{\pi}_2+\underline{\pi}_1^2 z-\underline{\pi}_1^2-2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|1}-\underline{\pi}_1\underline{\pi}_{3|1}z+\underline{\pi}_1\underline{\pi}_{3|1}+\underline{\pi}_2\underline{\pi}_{3|1}^2 \leq 0$ and $\underline{\pi}_1^2\overline{\pi}_2+$

$\underline{\pi}_1^2 z - \underline{\pi}_1^2 - 2\underline{\pi}_1\underline{\pi}_{3|1}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|1}z + \underline{\pi}_1\underline{\pi}_{3|1} + \underline{\pi}_{3|1}^2\overline{\pi}_2 \geq 0$ and $\underline{\pi}_1^2 z - \underline{\pi}_1\underline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|1} + \underline{\pi}_{3|1}^2 \geq 0$ and $-\underline{\pi}_1 + \underline{\pi}_{3|1} <> 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$-\underline{\pi}_1 z + \overline{\pi}_1 z \geq 0$ and $-\underline{\pi}_1 z + z \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}z - \underline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_2\underline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_1 z + \underline{\pi}_{3|1}z \leq 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $-\underline{\pi}_{3|1}z + \overline{\pi}_{3|1}z \geq 0$ and $\underline{\pi}_{3|1} < 1$ and $-\underline{\pi}_{3|2}z + \overline{\pi}_{3|2}z \geq 0$ and $-\underline{\pi}_{3|2}z + z \geq 0$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z > 0$

or

$-\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 + \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_2 + \underline{\pi}_{3|2}\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}\overline{\pi}_2 \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 + \underline{\pi}_{3|1}\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 + \underline{\pi}_{3|1}\overline{\pi}_2 \leq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 + \underline{\pi}_{3|1}\overline{\pi}_2 \leq 0$ and $-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_2\underline{\pi}_{3|1} + \underline{\pi}_2\underline{\pi}_{3|2} \geq 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_2\underline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|1} \leq 0$ and $\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|1} \leq 0$ and $-\underline{\pi}_1 + \overline{\pi}_1 \geq 0$ and $\underline{\pi}_1 < 1$ and $-\underline{\pi}_2 + \overline{\pi}_2 \geq 0$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}\overline{\pi}_{3|1}z \geq 0$ and $-\underline{\pi}_1^2\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|1}z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 z + \underline{\pi}_{3|1}\overline{\pi}_1 z \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}z > 0$ and $-\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}z \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2 z + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|2}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}\overline{\pi}_{3|2}z \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}z > 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2 z + \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}z \geq 0$ and $\underline{\pi}_1^2\underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 + 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z - \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|1}^2 \leq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}^2\overline{\pi}_2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_2 + \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z + 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2\overline{\pi}_2 - 2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}\overline{\pi}_2 + \underline{\pi}_{3|1}^2\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_1^2\underline{\pi}_{3|2}z + 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|1}z - \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}^2 z \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}z \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1} <> 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$\underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z + \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 + 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|2}^2 + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2} + \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 + \underline{\pi}_{3|1}\underline{\pi}_{3|2} \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2} - \underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_{3|1} + \underline{\pi}_{3|1}\overline{\pi}_{3|1} \geq 0$ and $-\underline{\pi}_1^2\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_1\underline{\pi}_{3|1} + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_1 + \underline{\pi}_{3|1}\overline{\pi}_1 \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1} > 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z + 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2} + \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}^2 \leq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z + \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 + 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2 z - \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z + 2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2} + \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}^2 \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2 + \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|2} + \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_{3|2} - \underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1}\overline{\pi}_{3|2} \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1} > 0$ and $\underline{\pi}_1^2\underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 + 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 - \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|1}^2 \leq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}^2\overline{\pi}_2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 - 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2\overline{\pi}_2 + \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 + 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}^2\overline{\pi}_2 - 2\underline{\pi}_{3|1}^2\underline{\pi}_{3|2}\overline{\pi}_2 + \underline{\pi}_{3|1}^2\overline{\pi}_2 \geq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}^2 + \underline{\pi}_1\underline{\pi}_{3|2} + \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1} \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2} - \underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1} <> 0$ and $\underline{\pi}_1 < 1$ and $\underline{\pi}_2 < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_1 < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \leq 1$

or

$\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}z \leq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|1}z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_1 z - \underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_1 z + \underline{\pi}_{3|2}\overline{\pi}_1 z \leq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z < 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|1}z - 2\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z \leq 0$ and $\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z \leq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|1}z - 2\underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}^2 z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z \geq 0$ and $-\underline{\pi}_1^2\underline{\pi}_{3|2}^2 z + \underline{\pi}_1^2\underline{\pi}_{3|2}^2 + \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_1\underline{\pi}_{3|2}^2 z - 2\underline{\pi}_1\underline{\pi}_{3|2}^2 + \underline{\pi}_{3|1}^2\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^2 z + \underline{\pi}_{3|1}^2 - \underline{\pi}_{3|1}\underline{\pi}_{3|2}^2 z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|2}^2 \geq 0$ and $\underline{\pi}_1^2\underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z + 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} - 2\underline{\pi}_1\underline{\pi}_2\underline{\pi}_{3|2}^2 - \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_1\underline{\pi}_{3|2}^2 z + \underline{\pi}_2\underline{\pi}_{3|1}^2 - 2\underline{\pi}_2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_2\underline{\pi}_{3|2}^2 \leq 0$ and $\underline{\pi}_1^2\underline{\pi}_{3|2}^2\overline{\pi}_2 - \underline{\pi}_1^2\underline{\pi}_{3|2}^2 z + 2\underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 - \underline{\pi}_1\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - 2\underline{\pi}_1\underline{\pi}_{3|2}^2\overline{\pi}_2 + \underline{\pi}_1\underline{\pi}_{3|2}^2 z + \underline{\pi}_{3|1}^2\overline{\pi}_2 - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_2 + \underline{\pi}_{3|2}^2\overline{\pi}_2 \geq 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}^2 z - \underline{\pi}_1\underline{\pi}_{3|2}\overline{\pi}_{3|2}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|2}z - \underline{\pi}_{3|2}^2 z + \underline{\pi}_{3|2}\overline{\pi}_{3|2}z \leq 0$ and $-\underline{\pi}_1\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z < 0$ and $\underline{\pi}_1\underline{\pi}_{3|2}^2 z - \underline{\pi}_1\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z -$

$\underline{\pi}_{3|1}z - \underline{\pi}_{3|2}^{2}z + \underline{\pi}_{3|2}z \le 0$ and $-\underline{\pi}_{1}\underline{\pi}_{3|2} - \underline{\pi}_{3|1} + \underline{\pi}_{3|2} <> 0$ and $\underline{\pi}_{1} < 1$ and $\underline{\pi}_{2} < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_{1} < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$\underline{\pi}_{1}\underline{\pi}_{3|1}z - \underline{\pi}_{1}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}^{2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z - \underline{\pi}_{3|1}z + \overline{\pi}_{3|1}z \le 0$ and $\underline{\pi}_{1}^{2}z + \underline{\pi}_{1}\underline{\pi}_{3|1}z - \underline{\pi}_{1}\overline{\pi}_{1}z - \underline{\pi}_{1}z - \underline{\pi}_{3|1}\overline{\pi}_{1}z + \overline{\pi}_{1}z \le 0$ and $-\underline{\pi}_{1}z - \underline{\pi}_{3|1}z + z < 0$ and $\underline{\pi}_{1}^{2}z + \underline{\pi}_{1}\underline{\pi}_{3|1}z - 2\underline{\pi}_{1}z - \underline{\pi}_{3|1}z + z \le 0$ and $\underline{\pi}_{1}\underline{\pi}_{3|1}z - \underline{\pi}_{1}z + \underline{\pi}_{3|1}^{2}z - 2\underline{\pi}_{3|1}z + z \le 0$ and $\underline{\pi}_{1}^{2}\underline{\pi}_{2} - \underline{\pi}_{1}^{2}z + 2\underline{\pi}_{1}\underline{\pi}_{2}\underline{\pi}_{3|1} - 2\underline{\pi}_{1}\underline{\pi}_{2} - \underline{\pi}_{1}\underline{\pi}_{3|1}z + \underline{\pi}_{1}z + \underline{\pi}_{2}\underline{\pi}_{3|1}^{2} - 2\underline{\pi}_{2}\underline{\pi}_{3|1} + \underline{\pi}_{2} \le 0$ and $\underline{\pi}_{1}^{2}\overline{\pi}_{2} - \underline{\pi}_{1}^{2}z + 2\underline{\pi}_{1}\underline{\pi}_{3|1}\overline{\pi}_{2} - \underline{\pi}_{1}\underline{\pi}_{3|1}z - 2\underline{\pi}_{1}\overline{\pi}_{2} + \underline{\pi}_{1}z + \underline{\pi}_{3|1}^{2}\overline{\pi}_{2} - 2\underline{\pi}_{3|1}\overline{\pi}_{2} + \overline{\pi}_{2} \ge 0$ and $-\underline{\pi}_{1}^{2}z + \underline{\pi}_{1}^{2} - \underline{\pi}_{1}\underline{\pi}_{3|1}z + 2\underline{\pi}_{1}\underline{\pi}_{3|1} + \underline{\pi}_{1}z - 2\underline{\pi}_{1} + \underline{\pi}_{3|1}^{2} - 2\underline{\pi}_{3|1} + 1 \ge 0$ and $\underline{\pi}_{1}\underline{\pi}_{3|2}z - \underline{\pi}_{1}\overline{\pi}_{3|2}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|2}z - \underline{\pi}_{3|2}z + \overline{\pi}_{3|2}z \le 0$ and $-\underline{\pi}_{1}z - \underline{\pi}_{3|1}z + z < 0$ and $\underline{\pi}_{1}\underline{\pi}_{3|2}z - \underline{\pi}_{1}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z - \underline{\pi}_{3|2}z + z \le 0$ and $-\underline{\pi}_{1} - \underline{\pi}_{3|1} + 1 <> 0$ and $\underline{\pi}_{1} < 1$ and $\underline{\pi}_{2} < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_{1} < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \ge 0$

or

$-\underline{\pi}_{1}\underline{\pi}_{3|2}\overline{\pi}_{2} + \underline{\pi}_{1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{2} + \underline{\pi}_{3|2}\overline{\pi}_{2} \le 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \ge 0$ and $\underline{\pi}_{1}z - \underline{\pi}_{1} - \underline{\pi}_{3|1}\overline{\pi}_{2} + \overline{\pi}_{2} \le 0$ and $-\underline{\pi}_{1}\overline{\pi}_{2} + \underline{\pi}_{1}z - \underline{\pi}_{3|1}\overline{\pi}_{2} + \overline{\pi}_{2} \ge 0$ and $-\underline{\pi}_{1} - \underline{\pi}_{3|1} + 1 \le 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \ge 0$ and $-\underline{\pi}_{1} - \underline{\pi}_{3|1} + 1 <> 0$ and $-\underline{\pi}_{1} + \overline{\pi}_{1} \ge 0$ and $\underline{\pi}_{1} < 1$ and $-\underline{\pi}_{2} + \overline{\pi}_{2} \ge 0$ and $\underline{\pi}_{2} < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_{1} < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$-\underline{\pi}_{1}\underline{\pi}_{2}\underline{\pi}_{3|2} + \underline{\pi}_{1}\underline{\pi}_{3|2}z - \underline{\pi}_{2}\underline{\pi}_{3|1} + \underline{\pi}_{2}\underline{\pi}_{3|2} \le 0$ and $-\underline{\pi}_{3|1} + \overline{\pi}_{3|1} \ge 0$ and $\underline{\pi}_{1}z - \underline{\pi}_{1} - \underline{\pi}_{2}\underline{\pi}_{3|1} + \underline{\pi}_{2} \le 0$ and $-\underline{\pi}_{1}\underline{\pi}_{2} + \underline{\pi}_{1}z - \underline{\pi}_{2}\underline{\pi}_{3|1} + \underline{\pi}_{2} \ge 0$ and $-\underline{\pi}_{1} - \underline{\pi}_{3|1} + 1 \le 0$ and $-\underline{\pi}_{3|2} + \overline{\pi}_{3|2} \ge 0$ and $-\underline{\pi}_{1} + \overline{\pi}_{1} \ge 0$ and $-\underline{\pi}_{1} - \underline{\pi}_{3|1} + 1 <> 0$ and $\underline{\pi}_{1} < 1$ and $-\underline{\pi}_{2} + \overline{\pi}_{2} \ge 0$ and $\underline{\pi}_{2} < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_{1} < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$\underline{\pi}_{1}\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{1}\underline{\pi}_{3|2}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}^{2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z + \underline{\pi}_{3|2}\overline{\pi}_{3|1}z \le 0$ and $\underline{\pi}_{1}^{2}\underline{\pi}_{3|2}z + \underline{\pi}_{1}\underline{\pi}_{3|1}z - \underline{\pi}_{1}\underline{\pi}_{3|2}\overline{\pi}_{1}z - \underline{\pi}_{1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{1}z + \underline{\pi}_{3|2}\overline{\pi}_{1}z \le 0$ and $-\underline{\pi}_{1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z < 0$ and $\underline{\pi}_{1}^{2}\underline{\pi}_{3|2}z + \underline{\pi}_{1}\underline{\pi}_{3|1}z - 2\underline{\pi}_{1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z \le 0$ and $\underline{\pi}_{1}\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}^{2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z \le 0$ and $\underline{\pi}_{1}^{2}\underline{\pi}_{3|2}z + \underline{\pi}_{1}\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{1}\underline{\pi}_{3|1}z - 2\underline{\pi}_{1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}^{2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z \ge 0$ and $-\underline{\pi}_{1}^{2}\underline{\pi}_{3|2}^{2}z + \underline{\pi}_{1}^{2}\underline{\pi}_{3|2}^{2} + \underline{\pi}_{1}\underline{\pi}_{3|1}\underline{\pi}_{3|2}^{2}z - 2\underline{\pi}_{1}\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + 2\underline{\pi}_{1}\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{1}\underline{\pi}_{3|2}^{2}z - 2\underline{\pi}_{1}\underline{\pi}_{3|2}^{2} + \underline{\pi}_{3|1}^{2}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^{2}z + \underline{\pi}_{3|1}^{2} - \underline{\pi}_{3|1}\underline{\pi}_{3|2}^{2}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|2}^{2} \ge 0$ and $\underline{\pi}_{1}^{2}\underline{\pi}_{2}\underline{\pi}_{3|2}^{2} - \underline{\pi}_{1}^{2}\underline{\pi}_{3|2}^{2}z + 2\underline{\pi}_{1}\underline{\pi}_{2}\underline{\pi}_{3|1}\underline{\pi}_{3|2} - 2\underline{\pi}_{1}\underline{\pi}_{2}\underline{\pi}_{3|2}^{2} - \underline{\pi}_{1}\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{1}\underline{\pi}_{3|2}^{2}z + \underline{\pi}_{2}\underline{\pi}_{3|1}^{2} - 2\underline{\pi}_{2}\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{2}\underline{\pi}_{3|2}^{2} \le 0$ and $\underline{\pi}_{1}^{2}\underline{\pi}_{3|2}^{2}\overline{\pi}_{2} - \underline{\pi}_{1}^{2}\underline{\pi}_{3|2}^{2}z + 2\underline{\pi}_{1}\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_{2} - \underline{\pi}_{1}\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - 2\underline{\pi}_{1}\underline{\pi}_{3|2}^{2}\overline{\pi}_{2} + \underline{\pi}_{1}\underline{\pi}_{3|2}^{2}z + \underline{\pi}_{3|1}^{2}\overline{\pi}_{2} - 2\underline{\pi}_{3|1}\underline{\pi}_{3|2}\overline{\pi}_{2} + \underline{\pi}_{3|2}^{2}\overline{\pi}_{2} \ge 0$ and $\underline{\pi}_{1}\underline{\pi}_{3|2}^{2}z - \underline{\pi}_{1}\underline{\pi}_{3|2}\overline{\pi}_{3|2}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\overline{\pi}_{3|2}z - \underline{\pi}_{3|2}^{2}z + \underline{\pi}_{3|2}\overline{\pi}_{3|2}z \le 0$ and $-\underline{\pi}_{1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z + \underline{\pi}_{3|2}z < 0$ and $\underline{\pi}_{1}\underline{\pi}_{3|2}^{2}z - \underline{\pi}_{1}\underline{\pi}_{3|2}z + \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}z - \underline{\pi}_{3|2}^{2}z + \underline{\pi}_{3|2}z \le 0$ and $-\underline{\pi}_{1}\underline{\pi}_{3|2} - \underline{\pi}_{3|1} + \underline{\pi}_{3|2} <> 0$ and $-\underline{\pi}_{1} - \underline{\pi}_{3|1} + 1 <> 0$ and $\underline{\pi}_{1} < 1$ and $\underline{\pi}_{2} < 1$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_{1} < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$

or

$\underline{\pi}_{1}\underline{\pi}_{3|1}z - \underline{\pi}_{1}\underline{\pi}_{3|1} - \underline{\pi}_{1}z + \underline{\pi}_{1} - \underline{\pi}_{3|1}\overline{\pi}_{1}z + \underline{\pi}_{3|1}\overline{\pi}_{1} + \overline{\pi}_{1}z - \overline{\pi}_{1} \le 0$ and $\underline{\pi}_{1}\underline{\pi}_{3|1}z - \underline{\pi}_{1}\underline{\pi}_{3|1} - \underline{\pi}_{1}z + \underline{\pi}_{1} - \underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + z - 1 \le 0$ and $\underline{\pi}_{1}\underline{\pi}_{3|1}z - \underline{\pi}_{1}\underline{\pi}_{3|1} - \underline{\pi}_{1}z + \underline{\pi}_{1} + \underline{\pi}_{3|1}^{2}z - \underline{\pi}_{3|1}^{2} - 2\underline{\pi}_{3|1}z + 2\underline{\pi}_{3|1} + z - 1 \ge 0$ and $-\underline{\pi}_{1}\underline{\pi}_{3|1}\underline{\pi}_{3|2}z + \underline{\pi}_{1}\underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{1}\underline{\pi}_{3|2}z - \underline{\pi}_{1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1}^{2}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}^{2}z + \underline{\pi}_{3|1}^{2} - \underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2} + \underline{\pi}_{3|1}z - \underline{\pi}_{3|1} + \underline{\pi}_{3|2} \le 0$ and $-\underline{\pi}_{1}\underline{\pi}_{3|1}z + \underline{\pi}_{1}\underline{\pi}_{3|1} + \underline{\pi}_{1}z - \underline{\pi}_{1} + \underline{\pi}_{2}\underline{\pi}_{3|1}^{2} - 2\underline{\pi}_{2}\underline{\pi}_{3|1} + \underline{\pi}_{2} \le 0$ and $-\underline{\pi}_{1}\underline{\pi}_{3|1}z + \underline{\pi}_{1}\underline{\pi}_{3|1} + \underline{\pi}_{1}z - \underline{\pi}_{1} + \underline{\pi}_{3|1}^{2}\overline{\pi}_{2} - 2\underline{\pi}_{3|1}\overline{\pi}_{2} + \overline{\pi}_{2} \ge 0$ and $-\underline{\pi}_{1}\underline{\pi}_{3|1}z + \underline{\pi}_{1}\underline{\pi}_{3|1} + \underline{\pi}_{1}z - \underline{\pi}_{1} + \underline{\pi}_{3|1}^{2} - 2\underline{\pi}_{3|1} + 1 \ge 0$ and $-\underline{\pi}_{1} - \underline{\pi}_{3|1} + 1 <> 0$ and $\underline{\pi}_{1} < 1$ and $\underline{\pi}_{2} < 1$ and $\underline{\pi}_{3|1}^{2}z - \underline{\pi}_{3|1}^{2} - \underline{\pi}_{3|1}\overline{\pi}_{3|1}z + \underline{\pi}_{3|1}\overline{\pi}_{3|1} - \underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + \overline{\pi}_{3|1}z - \overline{\pi}_{3|1} \le 0$ and $-\underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + z - 1 < 0$ and $\underline{\pi}_{3|1}\underline{\pi}_{3|2}z - \underline{\pi}_{3|1}\underline{\pi}_{3|2} - \underline{\pi}_{3|1}\overline{\pi}_{3|2}z + \underline{\pi}_{3|1}\overline{\pi}_{3|2} - \underline{\pi}_{3|2}z + \underline{\pi}_{3|2} + \overline{\pi}_{3|2}z - \overline{\pi}_{3|2} \le 0$ and $-\underline{\pi}_{3|1}z + \underline{\pi}_{3|1} + z - 1 < 0$ and $\underline{\pi}_{3|1} < 1$ and $\underline{\pi}_{3|2} < 1$ and $\overline{\pi}_{1} < 1$ and $\overline{\pi}_{3|1} < 1$ and $\overline{\pi}_{3|2} < 1$ and $z \le 1$